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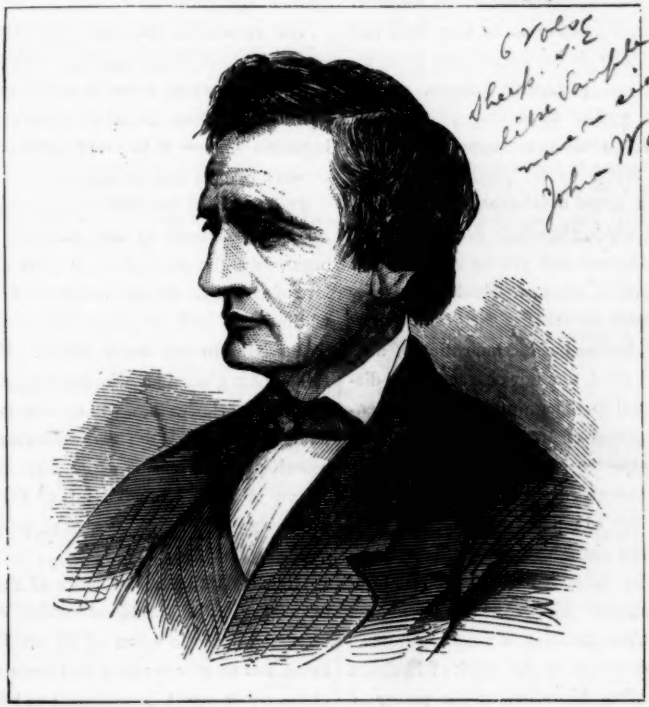


WILLIAM M. EVARTS,

THE LAWYER AND STATESMAN.

THIS gentleman has a large head, and it is especially large as compared with the size and weight of the body. His temperament, however, is fibrous, and contributes a high degree of sustaining power. There is not an ounce of "fat" on him;

and made up, as he appears to be for wear, he is very strong and enduring.

If he could weigh forty pounds more, however, and had a larger proportion of the vital temperament, we think his large and active brain would be better sustained.

His organization reminds us of that of Calhoun. He was severely intellectual, cool, unimpassioned, but intense. Mr. Evarts, if we may use the term, is all brain, with little or no passion or undue impulsiveness.

The reader will observe that the head from the opening of the ear to the centre of the forehead appears to be very long and massive. The fullness across the brow indicates large perceptive organs, or the power to gather facts and practical information; and while the upper part of the forehead seems to be particularly heavy, showing a large development of the reasoning faculties, the whole forehead hangs out over the eyes: and yet the eye is located well forward of the ear. He has not only the tendency to criticise facts and things and ideas, but he has the indication of ability to read mind, to study character and disposition, and to recognize readily the mental peculiarities of strangers. He has that insight respecting men which enables him to meet them on their own ground, and understand how to influence them.

The head rises highly from the eye, upward. The anterior part of the top-head seems massive and elevated, indicating three or four faculties in a strong degree, viz.: Benevolence, or the spirit of kindness and liberality; Imitation, or the power of adapting himself to his surroundings, and gliding into the habits and usages of men; and thirdly, the faculty of Agreeableness, or the ability to make himself acceptable to others. He has also strong Spirituality and Veneration, which give faith in the higher life and reverence for whatever is sacred.

He has a good degree of Constructiveness. His Ideality is also well-developed, giving him elegant diction, a love for poetry and works of art, and things of beauty.

His Firmness is large; the head rising upward from the opening of the ear shows that. Indeed, the whole top-head is massive; Firmness being in the centre of the back-section, shows steadfastness and stability; while Conscientiousness, located on each side of Firmness, fills up the head squarely, and indicates integrity and the spirit of uprightness.

The crown of the head is pretty well elevated, indicating dignity, self-respect, desire for approval, sense of public esteem, and the disposition to relate himself to life in such a manner as to avoid suspicion and to merit respect and confidence.

The organ of Inhabitiveness seems very strongly developed in this portrait. This organ lays the foundation for patriotism or love of country. He must be fond of home, of the homestead, *per se*, and of everything that relates to old family history. His social nature gives him affection for intimate friends, but he makes his way in general among people through his intellectual and moral power. He is more fond of the "feast of reason" than he is of the feast of feeling, physical sensuousness, or of the "flowing bowl."

If his constitution had more of the vital element, more of the blood-making, enthusiastic tendency to warm up his intellectual force, and to give impulse and ardor to his character, it would be a benefit to him and to the world; but being severely intellectual, and not impulsive or carried away by his animal feelings, he is always rigidly his own master, and achieves what he does on the basis of intelligence and morality—not by bluster, noise, or a play upon the passions and emotions of men.

One of the most eminent of living Americans by general consent is the gentleman whose name heads this article. All parties —political and social—entertain a high respect for him as a citizen, because of his fearless discharge of what he deems his duty to the community and the nation whenever called upon to take part in public measures; while his countrymen of all sections and opinions esteem him as a man for his uprightness and nobility of character.

William Maxwell Evarts was born in Boston, Massachusetts, on the sixth of February, 1818. His parentage is of the highest respectability. His father, Jeremiah Evarts, was a lawyer by profession, of finely cultivated mind, and for many years secretary of the American Board of Commissioners for Foreign Missions. William was provided with the best facilities in the way of school-training, and was sent to Yale College, where his father had been a student, and where he was graduated in 1837. In the same class were many who like him have become eminent as scholars, authors, or statesmen. Of these Mr. Samuel J. Tilden, Chief-Justice Waite, Attorney-General Pierrepont, Professors Lyman and Silliman may be mentioned. Leaving old Yale he commenced the study of law, and attended the school at Harvard for the purpose of advancing his professional studies. In 1841 he was admitted to the bar in New York city, and, in a few years, his industry and fidelity as an advocate gained a large clientage and an excellent position in the profession.

For the past fifteen years Mr. Evarts has been regarded as one of the most brilliant luminaries of the legal profession in the United States, and has been employed in the conduct of the most important causes of a national or private character. One of the most conspicuous was that of the trial of President Johnson on articles of impeachment in the spring of 1868. In this he acted as chief counsel for the defendant, and shortly after the close of the trial was appointed Attorney-General of the United States, and held that office until the close of Mr. Johnson's term.

In 1872 he was retained as one of the counsel for the United States before the Tribunal of Arbitration on the "Alabama claims" at Geneva. Perhaps the most important of his engagements as a lawyer in behalf of private individuals was that of his relation of counsel to the Rev. Henry Ward Beecher in the protracted and extraordinary litigation known as the Tilton-Beecher case of 1875.

On public occasions of moment, Mr. Evarts is one of the few men who are looked to as capable of taking the leading place and performing its duties gracefully and efficiently. Is the question for his consideration one which relates to a national measure or to a municipal interest, his opinion is asked and received with the conviction that it will embody the candid deductions of calm reflection and wide experience. At the celebration of the Centennial Anniversary of American Independence in Philadelphia, Mr. Evarts delivered the oration, from which the following extracts are taken:

"Within the hundred years whose flight in our national history we mark to-day, we have had occasion to corroborate by war both the independence and the unity of the nation. In our war against England for neutrality, we asserted and we established the absolute right to be free of European entanglements in time of war as well as in time of peace, and so completed our independence of Europe. And by the war of the Constitution—a war within the nation—the bonds of our unity were tried and tested as in a fiery furnace, and proved to be dependent upon no shifting vicissitudes of acquiescence, no partial dissents or discontents, but so far as is predicable of human fortune, irrevocable, indestructible, perpetual.

* * * * *

"The past and the present are the only means by which man foresees or shapes the future. Upon the evidence of the past, in the contemplation of the present of this people, our statesmen were willing to commence a system which must continually draw, for its sustenance and growth, upon the virtues and vigor of the people. From this virtue and this vigor it can alone be nourished; it must decline in their decline and

rot in their decay. They traced this vigor and virtue to inexhaustible springs. And as the unspent heat of a lava soil, quickened by the returning summers through the vintages of a thousand years, will still glow in the grape and sparkle in the wine, so will the exuberant forces of a race supply an unstinted vigor, to mark the virtues of immense populations, and to the remotest generations.

* * * * *

"Wealth in its mass, and still more in its tenure and diffusion, is a measure of the condition of a people which touches both its energy and morality. Wealth has no source but labor. 'Life has given nothing valuable to man without great labor.' This is as true now as when Horace wrote it. The prodigious growth of wealth in this country is not only, therefore, a signal mark of prosperity, but proves industry, persistency, thrift, as the habits of the people. Accumulation of wealth, too, requires and imparts security, as well as unfettered activity; and thus it is a fair criterion of sobriety and justice in a people; certainly when the laws and their execution rest wholly in their hands. A careless observation of the crimes and frauds which attack prosperity in the actual condition of our society, and the imperfection of the means for their prevention and redress, leads sometimes to an unfavorable comparison between the present and the past in this country as respects the probity of the people. No doubt covetousness has not ceased in the world, and thieves still break through and steal. But the better test upon this point is the vast profusion of our wealth and the infinite trust shown by the manner in which it is invested. It is not too much to say that in our times, and conspicuously in our country, a large share of every man's property is in other men's keeping and management, unwatched and beyond personal control. This confidence of man in man is ever increasing, measured by our practical conduct, and refutes these disparagements of the general morality.

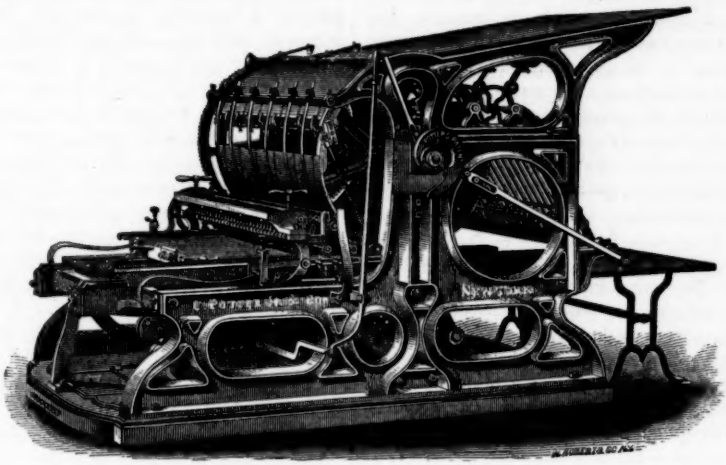
* * * * *

"The care and zeal with which our people cherish and invigorate the primary supports and defenses of their own sovereignty, have all the unswerving force and confidence of instincts. The community and publicity of education at the charge and as an institution of the State is firmly imbedded in the wants and desires of the people. Common schools are rapidly extending through the only part of the country which had been shut against them, and follow close upon the footsteps of its new liberty to enlighten the enfranchised race. Freedom of conscience easily stamps out the first sparkle of persecution, and snaps as green withes the first bonds of spiritual domination. The sacred oracles of their religion the people wisely hold in their own keeping as the keys of religious liberty, and refuse to be beguiled by the voice of the wisest charmer into loosing their grasp."

THE NATIONAL LOSS THROUGH RUM.—In one of her able lectures at the Chatauqua Temperance Convention, Miss F. E. Willard thus alluded to the astounding folly and wastefulness which liquor-drinking entails upon American society:

"America in its Centennial year is spending in rum as much as it would cost to put five lines of railroad from Maine to California, with all their equipments; as much as it would take, in addition to that, to endow a university with ten millions of dollars to every State in the Union; as much as it would take, in addition to that, to build a five-thousand-dollar school-house for every one hundred people in America; and as much as it would take, in addition to all that, to put out at interest and pay for one teacher for every one hundred people of the forty-two millions in America; and we get for all that tremendous outlay—what? Fifty per cent. of all the insanity comes from strong drink; seventy-five per cent. of all criminals become such while crazed by alcohol; eighty-five per cent. of all the murders grow out of drunken brawls, and come from grog-shops; and ninety-six per cent. of all the worthless youth emerge from drunken homes—nests of criminals."

Our people are much given to boasting of their practical common sense: this certainly does not indicate a big share of discretion.



THE LIBERTY OF THE PRESS: ITS USES AND ABUSES.

HAD Laurentius, Gutenberg, and Schaeffer foreseen all the grand and all the terrible results that would flow from their invention of the art of printing, they would have been appalled by their magnitude, extent, and duration; and, like the mass of the people, would have feared that a fiend in the guise of an angel of light, was luring them to death, to possible damnation.

Walking for pastime in the wood, Laurentius cut letters in the beech bark, and, pressing paper upon them, stamped the letters upon his paper; from that hour mental daylight dawned again upon the world; from that hour Hoe's printing-press was a "coming event," and the evangelization of heathendom a possibility. In order to understand and appreciate the press as it now exists, we must follow its course of growth from the beech-bark letters to the mighty engines and wonderful varieties of cast type that occupy the great printing establishments of the present time.

It reads like romance now, that Laurentius made wooden blocks on which he carved by pages the words for printing several small works, and that this laborious process was continued some length of time; that he thought only of using one side of the paper, leaving the other blank. Following this method a few years, he then made a great step in advance by inventing separate wooden types. It is told that he dwelt in a "decent and fashionable house in the city of Haerlem, opposite the royal palace." Thus the power that was to shake thrones, undermine despotism, and break a road for the onward march and battle-plain of liberal principles in religion and government, sprang into being almost under the eye of royalty. Insignificant in its beginning, as has been many another mighty agent of God, its very paltriness, clumsiness, and weakness were doubtless a cause of the art surviving its birth; had it not been kept secret through the jealousy of its discoverers until it had attained some small degree of perfectness and permanency, it would doubtless have awakened princely or priestly distrust, and would thus, for the time, have been lost to mankind.

The theft of the idea and the art by workmen who introduced it into several cities and countries, also tended to its improvement and preservation, so one man's loss became the gain of the centuries. Geinsfleich, the servant or apprentice of Laurentius, with his bundle of embezzled wooden types, betook himself to Mentz, and there

in 1440, commenced printing, having communicated his art to his younger brother, who has been called Gutenberg, and who dwelt at Strasburg till 1444; the two brothers afterward joined together at Mentz in the printing business, and tried to make a font of metal types with cut faces; after years of toil and a multitude of failures, they triumphed, in or about 1450, immortalizing their success by printing a part of the Bible.

Faust was now united to their partnership, adding to the brothers' ingenuity, his money. Schaeffer, a skillful workman, was afterward taken into the company, and he, gathering together their knowledge and experience, so fused and wrought all within his own great brain, that it produced the grand idea of casting type with faces, and thus, by the thought of each, added to the sum of all that had gone before, the art of printing has slowly grown from its childhood to full stature. To describe or even enumerate the various appliances and improvements of the art that have gathered around it since its birth, would fill a volume, and when we compare the bundle of stolen wooden letters with the vast quantities of beautiful type packed in the foundries today, we are ready to exclaim, "What hath God wrought!" for no power less than Divine could have inspired man to accomplish such marvels.

Whilst the names and memory of many who helped advance the art during its first feeble years, have perished utterly, and some dispute the claims of Laurentius, others, and especially Schaeffer, have received glowing tributes. Lambinet says: "Gloire donc à Gutenberg, qui, le premier, conçut l'idée de la typographie, en imaginant la mobilité des caractères, qui en est l'âme; gloire à Fust, qui en fit usage avec lui, et sans lequel nous ne jouirions peut-être pas de ce bienfait; gloire à Schaeffer à qui nous devons tout le mécanisme, et toutes les merveilles de l'art."*

* ["Glory then to Gutenberg, who first conceived the idea of typography by devising movable characters, which is the essential part; glory to Faust, who applied them to use, with him, and without whom we, perhaps, would not have enjoyed this benefit; glory to Schaeffer, to whom we owe all the mechanism and all the wonders of the art."—Ed.]

The earliest book extant is the Mazarin Bible, so the idea that was to illuminate the mental world of untold millions, in its first extended use, was employed to convey the thoughts of God to the sons of earth. An art so consecrated ought surely to bring good rather than evil to human kind; and the first printed books were generally of a superior order—works of theology and essays upon civil and canon law, were most numerous, and many editions of the classics were issued. Different writers estimate that from ten to fifteen thousand books or pamphlets were printed between 1470 and 1500; the number issued since could scarcely be numbered, much less named.

The price of books which had been so enormous that only wealthy nobles or monasteries could afford their purchase, was diminished two-thirds after the invention of printing. The University of Paris, Hallam says, fixed the price at which books should be sold in France, and the "Greek Testament of Colinæus was furnished for twelve sous, the Latin for six." This was about 1470; thus the press had already gained sufficient stability and permanency to enable it to so multiply and cheapen books as to bring them within the reach of men of moderate means.

The only opponents of the press, at first, were the copyists of books and the few dealers in manuscript works, parchments, etc.; but as their number was insignificant beside the vastly greater number of those who were benefited by the increase and cheapness of printed matter, their opposition was of trifling moment. After a time, other opponents arose whose hostility was more formidable. The Church had shown its jealousy of books so early as 1121, when Abelard fell under the censure of the Council of Soissons, for permitting his book to be copied without first having obtained leave of his superiors, and the copies were burned.

The Universities of Paris, Toulouse, Bologna, Vienna, and doubtless of other cities, had either usurped, or, as is more probable, been given a certain supervision over the booksellers of their cities, and books were not generally sold without their authority; the Universities fixed the prices, imposed

fines for incorrect copies, and even ordered books they thought harmful to be burned. Thus they were fostering a spirit hostile to freedom of the press, which at length, in 1486, found utterance in the order, or edict of Berthold, Bishop of Mentz. Hallam gives the substance of this document in the following words: "Notwithstanding the facility given to the acquisition of science by the divine art of printing, it has been found that some abuse this invention, and convert that which was designed for the instruction of mankind to their injury. For books on the duties and doctrines of religion are translated from Latin into German, and circulated among the people to the disgrace of religion itself; and some have even had the rashness to make faulty versions of the canons of the Church into the vulgar tongue, which belong to a science so difficult that it is enough to occupy the life of the wisest man. Can such men assert that our German language is capable of expressing what great authors have written in Greek and Latin on the high mysteries of the Christian faith, and on general science? Certainly it is not; and hence they either invent new words, or use old ones in erroneous senses; a thing especially dangerous in sacred Scripture. For who will admit that men without learning, or women, into whose hands these translations may fall, can find the true sense of the Gospels, or of the epistles of St. Paul? Much less can they enter on questions which, even among Catholic writers, are open to subtle discussion.

"But since this art was first discovered in this city of Mentz, and we may truly say by divine aid, and is to be maintained by us in all its honour, we strictly forbid all persons to translate, or circulate when translated, any books upon any subject whatever from the Greek, Latin, or any other tongue, into German, until, before printing, and again before their sale, such translations shall be approved by four doctors herein named, under penalty of excommunication, and of forfeiture of the books, and of one hundred golden florins to the use of our exchequer."

Thus the first direct attack upon the liberty of the press was made by the Church of Rome, and her hostility to the advancement of knowledge through the influence of a free press, has continued almost, or rather quite, to the present day. In 1509, the Inquisition at Cologne procured from the Emperor an order to destroy all Hebrew books excepting the Bible. This order was, however, revoked, before any steps had been taken to execute it; but subsequently the Inquisition burned any work which it saw fit to condemn; the reading of the Bible was interdicted, and people became afraid to own or read any book which the priesthood did not approve. This condition of things extended throughout Europe. The struggle which terminated in the Reformation was long and bitter, and the press has been struggling with, and gradually freeing itself from, those bonds, from that hour to this.

It has been thought grand to say "the pen is mightier than the sword;" it were truth better told to say, it is mightier than the cannon; but, beside the power of the press, the power of the pen is as cob-web to cable; for the pen, without the press to give enduring life to its productions, is almost as helpless as a nursing infant deprived of its mother. The press, rather than sword or cannon, has become the arbiter of the destiny of nations. It is the builder and conserver of civilization. Every click that tells off a printed page of pure thought, turns the wheels of progress one notch forward.

The press, by advocating the claims and showing the advantages of public improvements, has bound continents together by a net-work of railroads and telegraphic wires, bridged the ocean by electricity, and made it possible for each of earth's inhabitants to clasp in his hands the blessed text of God's Word. The press talks in every tongue, outlines any landscape, delineates any face, copies and keeps fresh in memory the angels and seraphs depicted by hands that went to ashes centuries ago. It can call into existence an army or build a navy; by an appeal it erects monuments to scholars, poets, and heroes; feeds starving nations, sends help to insect-ravaged States or burned cities. It makes and unmakes reputations, raises the weak,

obscure man upon a pedestal, or drags the once strong, noble man down.

Without the press the eloquent utterances of our divines and orators would die within the ears of their hearers, instead of echoing and re-echoing throughout the vaulted universe. Longfellow and Tennyson would be wandering Minnesingers, and Tyndall, Huxley, and Draper, alchemists hunting nature's secrets for the elixir of youth or the means of turning base metals into gold.

A torn slip of printed paper has tainted many a soul till, blackened and defiled, it has dragged itself through all earth's slime into the pit; while a similar rag of paper printed over with some pure thought has taken, by its agency, many a renewed spirit through the glory of a good life up among the sons of God.

But, powerful as the press is for good, most powerful is it also for evil. To-day it may send forth a message to comfort, purify, and bless; to-morrow it may give wings of fearful power to that which shall blight or blast many a human soul. Mighty as is the press, it has too often no conscience, is but a puppet in the hands of evil men and works as legibly, clearly, and elegantly upon the book which curses all who read it with the curse of a polluted imagination, as upon the volume of prayers wherein some redeemed son of man has recorded the soarings of his soul toward the infinite source of all perfection. The press has such potency that if it scattered good thoughts alway and everywhere, the saving influences thus generated would people earth with angels, whilst if unlimited license were given to print the bad, the story of Sodom and Gomorrah would repeat itself in every hamlet and city of earth.

If, then, modern civilization has evoked from the dumb forces of nature and man's soul a power that outweighs and dominates all other powers combined of wealth, rank, and genius, shall we give it into the hands of whoever may feel inclined to wield it, reckless of all consequences and irresponsible of all results, knowing, as we do, that in the hands of one, it is a beneficent spirit, and in the hands of another a very arch-fiend? Or, shall we have a censorship of the press, surround it with restrictions, fetter it here and manacle it there, curb and force, and regulate and direct, and ball and chain it, lest it do the world mischief, lest it cripple or destroy now and then a reputation, yea, now and often a human soul?

Many will answer, "Yea, verily, restrain the liberty of the press; let no immortal spirit be put in peril, if any care, or vigilance, or penalty can shield it." These are they who confound (though totally unlike) liberty with license. The one is the right of the human being or soul, to do whatever is for its good or pleasure, within the bounds of non-trespass upon the good or pleasure of any other human being or soul; whilst the other is the fancied right of any person to seek its good or pleasure, any way, anywhere, irrespective of the good or pleasure of any or all other human beings. The right sort of liberty is compatible with the best good of every member of society. And the fallacy of the foregoing reason for fettering the press is apparent, since it may be urged with equal truth against almost all the inventions and improvements of modern times.

The post may convey hints and information to rogues who will thus be enabled to rob, forge, or murder with greater hopes of success and less chance of detection. Shall we therefore abolish the postal service? Because more evil comes to the operatives by their concentration in mills and factories, shall we suppress them by law and bring back the distaff and spindle to all our firesides? The telegraph may be used to convey information that will create a "corner" in the markets, thus raising the price of life's necessaries and distressing the poor. Shall we therefore cry, Away with the telegraph?

No! we find that everywhere in life evil and good walk hand in hand; even marry, bringing forth children of light and imps of darkness. If we divorce them, they form unions more deplorable than those dissolved, or re-marry. By fettering the press we risk losing the thousand good things a free press might have produced, and we do not succeed in putting down or killing out evil, heresy, or schism, for just so long as mankind are born with different powers and

faculties of mind, will they devise new forms of belief, new dogmas, new creeds, and new methods of bringing them to the knowledge of their fellows and inducing their acceptance.

By liberty of the press we favor competition between rival publication houses and societies; newspapers and books are cheapened, and scattered by individual purchase, clubs, and libraries throughout the land; knowledge is disseminated, intelligence is quickened, life gains new importance in every way. And if we compare morals and the statistics of crime in lands where the press was restricted and those where it is, and has long been, free, we shall not find that virtue seems any stronger, vice any less common, or the general good of the people more thought of and guarded, in the former than in the latter; whilst stupidity, ignorance, and sloth much more abound.

We need only turn to the historical records of the time when the press was struggling against popish authority and governmental jealousy, when the best books were interdicted, while newspapers were but just coming into existence, and read the accounts of warfare, of assassination, of martyrdom for opinion's sake, of general debauchery and wide-spread crime, to be convinced that the press which leavened the minds of thinking men, till thought culminated in the Reformation, has been a powerful agent in giving us not only knowledge, but civil and religious rights. Germany and England were the first European countries which obtained anything like liberty of opinion and right to publish anything which disagreed with the views of priest and ruler, and a most bitter and long-continued contest was waged to accomplish it.

The good old days of "merrie Englande" are often referred to by poet and orator, but the historian strips off the romance and *couleur du rose*, and shows us in plain words how evil were those days while the press was chained. Draper says of the fifteenth, sixteenth, and seventeenth centuries: "The annals of those evil days are full of wanton and objectless barbarities, refusal of quarter, murder in cold blood, killing of peasants. Invading armies burned and destroyed everything in their way; the taking of plunder and ransom of prisoners were recognized sources of wealth. Prosperous countries were made a 'sea of fire;' the horrible atrocities of the Spaniards in America were rivalled by those practiced in Europe; deliberate directions were given to make whole tracts a desert. Long before Henry VIII., England was ready for the suppression of the monasteries. There were incessant complaints against the clergy for their scandalous lusts."

The clergy of that time were not only dissolute, but illiterate; the custom of copying manuscripts having fallen into disuse, or being but slightly practiced, they had lost their taste for literature. Reading was far from universal, and the stage was almost the only public means of amusement or instruction, and the corruption of the stage was something fearful. Many of the plays were indecent beyond description. In one of the "Mysteries," Adam and Eve appeared nude; yet during this time there was a censorship of the press in England, which expired only in 1679, though certain restrictions yet continued; but, in truth, the fetters which bound the press were political and religious fetters; neither clergy nor government troubled themselves about guarding the people from that which was base, demoralizing, or licentious. Macaulay writes: "Any person might, therefore, print at his own risk, a history, a sermon, or a poem, without the previous approbation of any public officer; but the judges were unanimously of the opinion that this liberty did not extend to Gazettes, and that, by the common law of England, no man not authorized by the crown, had a right to publish political news."

Yet England was far in advance of the remainder of Europe in advocating and upholding liberty, of opinion and expression. What we wish especially to note in regard to these times when the press was not yet free, is the insecurity of life and property, and almost universal disregard of personal purity and chastity. Macaulay says that "One hundred thousand women were estimated as rendered profligate by the priesthood" in England alone. These few words picture to any reflecting mind the utter

corruption of the times. And little or nothing of this can be attributed to the press; though most secular publications were tainted through and through with indecencies that would not be tolerated now; yet the number of readers was so restricted that the widespread immorality could not have been caused by the literature of the times, but came rather from too close an imitation by the people of the manners and morals of clergy, nobles, and kings.

Confine the noblest intellect in a dungeon, and in time power of thought will die out within his mind. The press is like man in this; if it be not wholly free, it becomes fearful, cringing, servile, and, like any craven, wholly unreliable. Whilst fettering the press may prevent some works dangerous to the moral or spiritual natures of man from taking a permanent form, the ignorance or bigotry of the censor might also prevent the publication of books of the greatest worth and importance.

What any and every people need, is such a censorship, such a restriction of the press as a high moral and religious tone among the masses would afford. It is a truth that publishers send forth such wares as they know by experience the people will buy. When they find that slang, equivocal expressions and illusions, sensational stories, slanderous anecdotes, details of crime, and lewd publications however disguised, have no market, because the people are morally and intellectually educated above and beyond them, they will certainly cease their publication.

The cheapness of books, caused by perfect freedom of the press, has multiplied and extended libraries throughout the civilized world. In our own land, everybody almost —save the very poor—own more books than once did the wealthiest monarch or monastery; while persons of only moderate means, but possessing a literary taste, will number their volumes by scores and hundreds. Corporations, societies, and public libraries possess thousands upon thousands of printed books and old manuscripts. The royal libraries of St. Petersburg, Vienna, Paris, and the library of the British Museum at London, omitting all other collections, contain more intellectual riches than were extant in the world before the art of printing was exercised.

There is no doubt the manuscript works of the ancients, the riches of Constantinople and Alexandria were over-estimated. When we consider the labor of preparing papyrus and parchment, the immense amount of parchment consumed, the time necessary to copy out so many volumes, and the comparatively small reading public, we can scarcely believe so many books — or rolls, rather—were prepared, as many writers assert. Even in the palmy days of Egypt, Greece, and Rome, the reading population must have been far less than in our day, and the number of writers could not have been nearly so great; for there can be no doubt that facility of publication urges hundreds to become authors who otherwise would turn their attention to more remunerative pursuits.

Authorship has never been, save to a favored few, a lucrative occupation, but has rather been followed for love's sake by most who make it a profession. Genius has often been worse paid than mediocrity; and, in those days of persecution and death for truth's sake, many an author and printer paid their lives for daring to defy tyranny—for daring to speak their own thoughts in their own way. So far was persecution carried, even in England, that, so late as the seventeenth century, it was not safe to read or own anything printed surreptitiously; George Thompson's adventures with his collection of pamphlets—now a part of the wealth of the British Museum—exemplifies this assertion. He began about 1640 to collect the publications relating to the controversy about church government, and, until after the Restoration, he proceeded as he said "with that chargeable and heavy burden, both to himself and his servants that were employed in that busines, wch continued above the space of twenty yeares, in wch time hee buried three of them, who tooke greate paines both day and night wth him in that tedious employmt." Besides the labor, the business was dangerous. Notwithstanding the censorship many prohibited pamphlets appeared, and search for

their authors was often keen. "Even to possess such publications was a matter of peril; and, in the present case, the peril was increased by the preservation and transcription of many obnoxious MSS." "In this numb. of pamphletts is contained neere one hundred sev'all peeces in MS., most of wch are on the king's side, wch no man durst venture to publish here without the danger of his ruine."

These books passed through many vicissitudes. "When the army was northward," they were packed off into Surrey; when the army moved westward, they were returned. Thompson fearing to keep them, sent them to a friend in Essex. Alarmed by another movement of the troops, he "was feign to send for them back." Finally, he concealed them by placing them in tables with false tops in his warehouse, where they remained until the collector made a sort of transfer of them to the University at Oxford. After some years they were bought by George III. and given to the British Museum.

France ("La Belle") has passed through many political and religious contests, and there can be no doubt that if freedom of opinion had been accorded to her people in those days when she hung and burned such men as Stephen Dolet, the mad, terrible strife of later days would have been avoided, and the career of men like Robespierre, Marat, and Napoleon would have been an impossibility.

A free press is a constant check upon tyranny or abuse of power. A ruler who would be despotic—trampling all laws, human and divine, under foot—providing he could escape popular execration, would hesitate to commit the same acts, if he knew the knowledge of them would be sent, not only through his own dominions, but throughout the civilized world, upon the wings of the public prints.

By a careful survey and comparison of those lands where the press has been most guarded, watched, and restricted with those where it has been longest free from surveillance, we plainly see the vast superiority in morality, intelligence, and religious feeling of the people in the latter over those in the former; and while we acknowledge that the sensational literature of the day, which includes morbid fiction, details of atrocious crime, and whatever panders to a low moral and intellectual taste, is a source of vast and incalculable evil; that the custom of befouling political opponents by opprobrious names is a crying fault; that the advertisement of wares known to be worthless and even injurious is an open and constant sin committed by the press; that the paid praise of orators, singers, and actors is unworthy the profession of journalism; still, these evils are white beside those flowing from restriction, and these very evils have been permitted when the press has been most shackled.

Doubtless the worst effects of a free press arise from the facility with which demagogues obtain the ear of the people, and, by constant iteration of their views and policy, obtain adherents and advocates of the wildest schemes or most corrupt measures. Yet, while much money and labor is wasted upon projects almost wholly useless, on the other hand, works are often urged by the press that prove of vast public and private gain. Every business of any magnitude owes as much of its prosperity to the newspaper press as to the actual labor of its founders and operatives. By advertisements and notices the papers dispose of more goods than any clerk behind the counter; exchanges or sells more real estate than the most faithful agent; builds up more schools, libraries, and churches than all the book-readers, teachers, and ministers combined.

Since evil is but a deficiency or excess of good, the two bear such an intimate relation to each other as to be almost or wholly inseparable from any pleasure or business of earth; and since God himself allows evil and even sin to exist, and employs them as agents in bringing about good, it is useless for mankind to attempt by restrictions to separate them entirely from any honorable pursuit; and if the press may be fettered, put under censorship, because it is not wholly pure and upright, so may any and every calling in which men engage.

There is no nobler, more honorable class of men and women in the world than that

large and ever-increasing one which represents the press in the various departments of compositor, reporter, correspondent, editor, and author. For morality, generosity, native ability, education, intelligence, and every honorable and worthy quality, they challenge comparison with the members of any other profession; and when, in any department of life's industries, we find high qualities predominate in those engaged in it, we may be sure that such an enterprise needs no surveillance by other men.

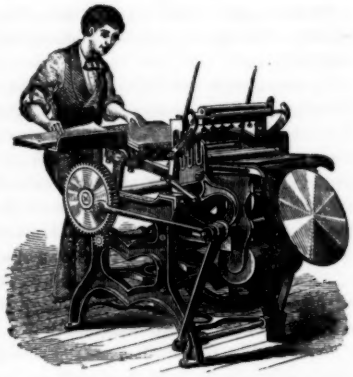
And, until we can call in requisition some higher ability than any vouchsafed as yet to man, some far-reaching and omniscient intelligence which can unravel the evil from the good in all literature, and with unerring precision, determine what is for the growth and welfare of every soul in Christendom, it were better the press should remain entirely free, except as to those gross publications which tend directly to corrupt and destroy.

The fountain of Helicon, it is fabled, though yielding pure water when untroubled and flowing freely, had, nevertheless, a muddy bottom, and care must be used by those who would drink from it, or they mingled the pure fluid with mud. The press is like this fountain. If its flow is prevented, the black mud — which is the evil connected with every earthly enterprise—and its pure water or good becomes mingled; and, as in the French revolution, when the press broke its bonds and flooded Paris with the maddest, most terrible writings, it devastates and destroys everything in its mad career.

Though rights will be ignored, justice evaded, and sin committed to the end of time, we have the best guaranty of the greatest good flowing to the greatest number; while there is equal chance for every one to make known his grievance, and least chance for crime to shield itself, in the broad mental daylight of a free press.

It can never happen that an art devoted from the first to publishing for mankind the love of Christ and the laws of God—an art whose most beautiful, most cherished specimens, the early Bibles, are sought after by princes and literati, held at fabulous prices, and regarded with the utmost reverence by all men—can ever become so lost, so devoted to evil and its emissaries as to require the authority of government or church to prevent fatal harm to the true interests of mankind.

Go into the Bible House and see the works of the press in every written language upon earth; think of the consecrated labor, that, through centuries of con-



stant effort, has been employed upon the heaped treasures; and, after a careful study of the subject, name any other field of labor so slightly remunerated, wrought by men of such ability, presenting such noble results. No! the works of the press are our noblest monuments. A free press is a safeguard of liberty—a sure defense against wrong or abuse of power.

A. V. PETTIT.

UPON examining the edge of the sharpest razor with a microscope, it will appear as broad as the back of a knife—uneven and full of notches. An exceedingly small needle resembles an iron bar. But the sting of a bee seen through the same instrument exhibits everywhere the most beautiful polish, without a flaw, or inequality, and it ends in a point too fine to be discerned. The threads of fine lawn appear coarser than the yarn with which cables are made. But a silk-worm's web appears smooth and shining and everywhere equal.

LETTERS TO A SON IN COLLEGE.

No. I.

MY DEAR BOY:—I am very happy to hear that you are pleasant. located and well-established in your college-home.

The institution of which you are a member ranks deservedly high in moral tone—for the thoroughness of its discipline and the ability of its teachers. I trust you will fully appreciate and improve the advantages which you enjoy of gaining a liberal education.

Having passed through a college course myself, I am able to appreciate your position. I can foresee the temptations to which you will be subjected, the difficulties which you will meet, and the dangers which will beset your pathway. I have made myself familiar with your curriculum of study, and, from my experience with the world, I am able to judge of the relative practical importance of the various branches which will receive your attention. I hope you will give diligent heed to what I may say; for I think I am well-qualified to give such counsel and instruction as will enable you to derive the greatest benefit from your college course.

Let me at the outset give you a clear idea of the object for which you should study.

It is one of the evil results of the system of honors and prizes, which exists in most of our colleges, that they are too often made the goal of the student's ambition. Even before he enters college, many an ambitious youth canvasses the list of prizes in the catalogue, and marks out those for which he intends to make special effort.

"Where is my forte?" he says. "Is it in Latin, Greek, mathematics, the natural sciences, writing or speaking, or do I possess such general abilities as will enable me to bear off the first honors of my class?"

His armor is burnished and buckled on for the fray the moment he enters the college walls, and he enters upon the contest with a zeal which renders him blind to nearly every consideration but the selfish gratification of bearing off the first prize or the first honors. The college course of many a student thus becomes a mere strife of brains and physical and mental endurance. He who is the brightest—he who consumes the most midnight oil—he who is willing to make the greatest sacrifices of physical and mental vigor—he is the one who receives the plaudits of admiring friends, and who is honored by his family as their proudest joy.

Now, I do not know that it would be well to do away entirely with rank and prizes in college. Doubtless, until the student's ambition shall be directed by a higher order of intelligence and morality, they will be useful in stimulating to diligence, and in elevating the standard of excellence in the various departments of college study. But I would caution you against making these honors for themselves the object of your endeavor. Let it be your ambition to make the most of yourself to rear to the highest perfection of which they are susceptible the mental and physical powers which the Creator has bestowed upon you.

This is the proper notion of education—the training of the physical and mental organs to act promptly, vigorously, and harmoniously. He is the best educated who has all his faculties the best-developed and under the most complete control, and who knows how to manage them in accordance with the laws of their organization.

Again, many a youth enters college with the idea that the success of his college career will be measured by the amount of knowledge which he carries away with him. He looks upon his brain as a sort of storehouse, and the college text-books and libraries as a magazine of general supply. The professors he regards as aids in helping him to cram his head with the contents of the books. He makes no special effort after rank or prizes, but rests satisfied in accumulating the product of other men's brains.

Now I would not depreciate the importance of a good fund of general information. The more a man knows of any subject, the better able is he to form a correct judgment in regard to it. We must have facts and data to support our principles; and

it is useful to be familiar with the thoughts of the best minds in regard to any subject which may claim our attention. But I would caution you against making a mere granary of your brain. It is not what we eat, but what we digest and assimilate which builds up the body; so it is not what we read, but what we excogitate, which contributes to the true development of mind. We may clog the brain with a superabundance of mental pabulum, as we may overburden the stomach with an excess of food. In either case we do an injury to ourselves by perverting the normal function of these respective organs.

Some of the most original thinkers have been men of limited reading. The celebrated Dr. Robertson once said that he could count on his fingers all the works on theology that he ever read. And Miss Martineau declared she was one of the slowest of readers—sometimes consuming an hour on a page.

What I wish to impress upon you is the importance of mental thoroughness. Think, ponder, excogitate, dissect, analyze! Go to the bottom of every subject which engages your attention. Rest not content till you stand upon the substantial basis of its fundamental principles.

There are a thousand facts and phenomena to every principle. Get the principle, and you grasp the trunk from which radiate its myriad branches; consider the facts only, and you become confused amid a multiplicity of objects which present little order or connection.

Remember, also, that the true object of life is the development of the immortal part of our nature, and that knowledge is useful in proportion as it contributes to this high end.

There is a relation, nearer or more remote, between every object that exists and man. To know these relations, to understand how the various objects which exist about us may contribute to our physical comfort and enjoyment, and how our moral and intellectual natures may be best cultivated and developed—this is true wisdom. These are objects worthy of our serious study and our most earnest endeavor.

Let all your studying, therefore, converge to this one focal point, and you will achieve the true object of intellectual attainment.

Affectionately yours,

PATER CONFIDENS.

HARMONY OF SCIENCE AND RELIGION.

NOW, at eighty-two and a-half years of age, still, by God's forbearance and blessing, possessing my mental powers unimpaired, and looking over the barrier beyond which I soon must pass, I can truly declare that, in the study and exhibition of science to my pupils and fellow-men, I have never forgotten to give all honor and glory to the infinite Creator—happy if I might be the honored interpreter of a portion of His works and of the beautiful structure and beneficent laws discovered therein by the labors of many illustrious predecessors. For this I claim no credit. It is the result to which right reason and sound philosophy, as well as religion, would naturally lead.

While I have never concealed my convictions on these subjects, nor hesitated to declare them on all proper occasions, I have also declared my belief that, while natural religion stands on the basis of revelation, consisting, as it does, of the facts and laws which form the domain of science, science has never revealed a system of mercy commensurate with the moral wants of man. In nature, in God's creation, we discover only laws—laws of undeviating strictness, and sore penalties attached to their violation. There is associated with natural laws no system of mercy. That dispensation is not revealed in nature, and is contained in the Scriptures alone.

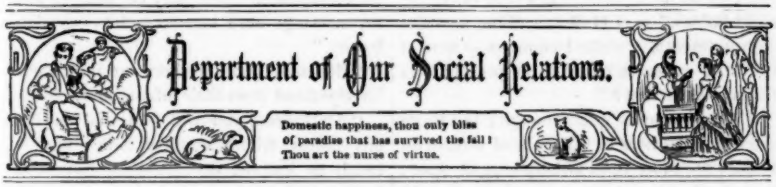
With the double view just presented, I feel that science and religion may walk hand in hand. They form two distinct volumes of revelation, and, both being records of the will of the Creator, both may be received as constituting a unity, declaring the mind of God; and, therefore, the study of both be-

comes a duty, and is perfectly consistent with our highest moral obligations.

I feel that, as this subject respects my fellow-men, I have done no more than my duty; and I reflect upon my course with subdued satisfaction, being persuaded that nothing which I have said or omitted to say in my public lectures, or before the college classes, or before popular audiences, can have favored the erroneous impression that science is hostile to religion.

My own conviction is so decidedly in the opposite direction, that I could wish that students of theology should be also students of natural science—certainly of astronomy, geology, natural philosophy and chemistry, and the outlines of natural history.

PROF. SILLIMAN.


Department of Our Social Relations.
Domestic happiness, thou only bliss
Of paradise that has survived the fall!
Thou art the nurse of virtue.

PEACEMAKER GRANGE.

"The age culls simples;
With a broad clown's back turned broadly to the
Glory of the stars."—*Mrs. Browning.*

CHAPTER XIV.

A MODEL NURSERY.

"I HAVE heard," said Farmer Hallett to Judge Templeton, "that you have some novelties here in the way of caring for children. I trust you have not adopted the old Spartan idea, that the youngsters belong to the State?"

"No," replied the Judge; "we simply give every mother and father here as good, and better, opportunities to avoid oppressive burdens in caring for their offspring as wealthy English and American parents now enjoy."

"You do not, then, take them from their parents and raise them on strictly scientific principles, as some propose to?"

"We think that we raise them on scientific principles without taking them from their parents. But we do not think that the fact of motherhood should deprive a woman of nearly all participation in the other affairs of life, as it does usually among the poor, while the children are very young. Come, I will show you our public nursery and kindergarten."

He then led him to the west end of the main building, from which a covered way extended to a spacious and beautiful structure, seemingly one story high on two sides and two stories on the others; as the high ground on two sides hides the lower floor from view, except that small ventilating windows are seen on those sides. There are wide verandas on two sides, upon which many little toddling things were walking and playing. In the grounds all around larger children were playing. In the distance appear the chimneys of the factories over the tops of the trees.

Entering this building, they beheld the scene so graphically portrayed in the larger picture, which shows the interior of one wing of the nursery.

"You have heard," said the Judge, "that in cities now they are providing day nurseries, to which mothers who have to leave home can bring their infants. We have here an amplification of that idea, in the use of the youngest of these children. The others are really in process of education—in the first stages of kindergarten instruction. You will observe that the cradles for the youngest are placed in four compartments, which are essentially, as to ventilation, etc., four separate rooms."

"I should think," said Hallet, "that the women who attend that department must be very fond of babies;" and he looked rather quizzical.

"Yes, indeed; they are all women who seem perfectly miserable away from babies, and are only too happy to perform any service for them."

"Twelve, twenty-four, thirty-six, forty-eight—I see there are cradles here for forty-eight babies," said Hallet, walking past the compartments, "while I count only nine of the little snoozers on hand at present. Is this a poor season?"

"The season is good enough; but there are not many here at this time of day. You seldom see more than twenty here at once; though there may be a hundred all told during the day—some of them belonging to visitors from East and West Haven."

"I should think that the sanitary feature would be troublesome."

"No, you perceive less evidence of vitiated air here than you will in ordinary nurseries containing one child. Prompt attention is the secret. Again, we have novel inventions here. These cradles are oval, and made of iron wire. Over the wire bottom is a cloth; upon the cloth six inches of bran. Over this a thin cloth. When the child is removed the dampened portion of the bran is replaced with fresh. Experience has shown that upon this simple bed, which is so easily kept sweet, the child does not suffer from cold in winter or from heat in summer. Soiled garments are instantly sent away, as I will show you."

Going to a window, he pointed out a building on a lower level several hundred feet off. Then opening a small cupboard door, he revealed a miniature railroad tunnel, with little cars on a double track. The opening was eighteen inches by three feet. A car stood waiting at the head of one track. A rope fastened to it passed around a pulley and ran down the other track.

"A gravity railroad, you see," said the Judge. "When the weight on the upper loaded car is not enough to pull up the empty one, a pitcher of water poured into that tin box under the car carries it to the bottom, where it dumps its load and the water automatically."

"Do any of these babies stay here all the time?"

"Only a couple of orphans at present. The society adopts its friendless orphans. Women bring their babes here when they wish to engage in work away from their rooms, or to visit where the child would be an annoyance. You may be sure we have no meetings here interrupted by squalling babies."

"But most good mothers can not bear to be separated from their infants for an hour."

"Ah, indeed, you will find that the fine city ladies, whom country ladies wish so much to imitate, do not often have their babies with them a whole hour at a time during the day. They visit the nursery occasionally to see that the wet-nurse does her duty, and have the baby brought to them when friends call to show it off. I venture to say that there is not a queen in Europe can leave her infant in charge of her hirelings with the same confidence with which the poorest woman here can leave her child with these her dear sisters, who have been picked out for this responsible position from so many hundred women."

"But will a mother be content to leave her dangerously sick child here?"

"Such children are seldom brought here. When they are, and the mother is much exhausted, she catches what sleep she can in an adjoining room. We always manage in some way to relieve those who have sick relatives, old or young, from the strain of watching. Few things have shortened so many lives as these extra strains. One of the blessedest things about our life is that neither men nor women here ever have occasion to strain themselves either mentally or physically."

"Are you not afraid of carrying this thing so far that women will become careless and indifferent toward their children?"

"Can a leopard change his spots? Can a mother forget her sucking child? We simply take away from motherhood and matrimony so many of the usual drawbacks that both are entered into with unusual zest. We have no 'unwelcome' children

here, and no known inharmonious couples."

"And no divorces?"

"The absurd divorce laws are one objection to this State. It is said that there has never been but one divorce put through the Virginia courts. Wife-ownership goes hand in hand with slave-ownership. We gave due notice to our friends that divorce was next to impossible here, and advised incompatibles to stay away. Consequently, we have had very harmonious couples. A few that could not manage to hang together we sent to live in some enlightened Northern State till they got out of their misery."

"You maintain that your children of all ages are with their relatives as much as they should be?"

"Yes, indeed, we insist upon it. I was thinking only yesterday, as I watched a child a year old among its relatives, how important this environment was. The youngster was the center of attraction. There were the parents, grandparents, two cousins, two uncles, and an aunt. The coming of the little one was heralded a long way off. It was half smothered in kisses, and each must take a turn at dandling it. Then it was set upon the floor to amuse itself, and each one in passing had a caress or a fillip for it. These least ones are thus fed upon love and sympathy. Who can tell how much their life and future weal depend upon these things? No wonder that the babies in the most scientific foundling asylums die at such a fearful rate. No wonder that asylum children have usually so little life and sparkle in their faces."

"I notice," said Hallet, "that there is no crying here, either among the infants or the next larger children, except when a young one tumbles over and hurts itself."

"No; it is wonderful how such little creatures take care of each other, and how much annoyance they will stand without flinching when in company with a number of the same age. You will often see such a family group as I spoke of trying in vain to keep a little child quiet; whereas, if you would place that same child here with those of the same age, it would be still at once, and begin to scrape acquaintance. Even quite young babies delight to sit by the hour and gaze with open-eyed wonder at the older ones toddling and playing around."

"Are these that can just walk taught anything?"

"But little more than those of the same age elsewhere. They must learn when in the nursery that they are not monarchs of all they survey, as they are not apt to when with their fond parents. They must wait without crying until their turn comes to be attended to. They must stand up bravely in that little gallery in which they are taught to walk, and to pass their comrades without knocking them over or falling themselves; to watch the little babies, to admire the birds in the aviary, and talk with the parrots; to call the squirrel and make him turn in his cage; to guide smaller children by the hand on the balconies."

"They must become very curious about the operations of the larger children that they see through the railing."

"Yes; and as soon as they can fairly walk, they begin to ask leave to join these larger children. This is genuine *education*—their minds are drawn out—enticed out—instead of being forced. They are usually only set at any task after they have asked to be so employed."

"Those larger children, with their marching and dancing to the music of the violin, are having fine times."

"They certainly think so. This is the primary department of the kindergarten; in the other rooms you will see them busy with object-lessons. Very seldom is any punishment or compulsion needed with them."

"You must have had trouble in persuading your women to adopt such noveltics."

"Our leading ladies were used to following the teachings of common sense. They had most to do with arranging this part of the establishment."

Hallet, after inspecting the rest of the children's building, declared himself a convert; but shook his head dubiously when he thought of "the time he'd have" reconciling his wife to the plan; for he was arranging to bring his family to Virginia.

SAMUEL LEAVITT.

(To be continued.)

YOUNG GIRLS.

DEAR JOURNAL: My especial weakness is for young girls, and I have been wondering whether you have many such among your readers. A real, natural girl from twelve to nineteen years of age, is to me the loveliest and most interesting object in the world. I have a peculiar yearning for them. But the interest I feel relates, perhaps, as much to their future as to their present. They are now at the period of life which, to a great extent, decides their future; and as the future of each is decided, so is decided the fate of an ever-widening section of the world's inhabitants, for all time to come.

Let us for a moment consider young girls as forming the center or axle of the wheel of the race. Soon each attracts and accepts a mate, and the section widens and goes on widening, till the rim of the wheel presents a wide array of those who shall in the future look back to the maiden at the center as the progenitor, and in great measure the arbiter of their condition and fate.

If young girls could realize this fact they would, I am sure, feel that there is something more to be heeded and sought, than the mere present gratification of their love for finery and display, and their desire for flattery and praise. They would reflect and consider that their ideas and conduct, their arrangements and decisions, are not for themselves and the present alone, but for an ever-widening circle and for all future time. Even those who do not marry are so intimately connected with future generations either as teachers, maiden-aunts, or counselors, that their influence will be transmitted from generation to generation; and if they do not widen the material circle, they may exert quite as marked a sway over the race as do their sisters who perpetuate it.

Always having had young girls about me, whom it was my duty and my pleasure to counsel and advise, I trust I shall be pardoned for repeating here what I recently had occasion to say to a young girl from the South, who has been under my supervision during the last two years, and who is shortly to return home for a visit; she is not of the higher classes, had never seen society, and was quite uninformed, being but fourteen years of age when she came to me.

"Do you know, Emma," said I, "that I am feeling very anxious about your going South? I am even fearful that your visit home may prove very detrimental to you so far as your further improvement and future happiness are concerned."

She was, of course, greatly surprised at this, and in explanation, I continued: "You can not help being aware that you are very much changed since you left your home. Then, you were a child; now, you are a woman. Then, you were stiff and awkward in your manners and could scarcely reply when spoken to; now, you are easy and graceful, and can converse pleasingly and with propriety. You have improved in your looks; you have blossomed out; you are dressed better, more tastefully, and in every respect you present a far better appearance than when you came North.

"Now, my fears for you are, that when you get back home you will look and appear so much prettier than the other girls—who would be just as much improved as you are if they had the same opportunities—that the young men and boys who in every grade of life and in all parts of the world are inclined to pay most attention to those who are best dressed, will tell you how pretty you have grown, and how *nice* you look, and you will be carried away with their court, and some of them will make love to you, and you will fancy, in your foolish pleasure at their attentions, that you are in love with some one—who happens to flatter the most pleasingly—and then you will be engaged, and finally married, to settle down in some poor way for life; with no chance for any further improvement, and without the first idea of what true love is, or of the responsibilities or requirements of married life!

"But let me tell you, Emma," I went on, "if you do this you will in less than three months be the most unhappy woman you can conceive of; you will miss the culture that you see here; you will miss the beautiful things which are all around you wherev-

er you go; you will have no means to continue the gratification of your taste, or to renew your pretty clothes when they shall be gone, and you are not yet supplied with sense or maturity sufficient to enable you to make the best of everything and develop beauty in yourself by the very lack of it about you.

"Moreover, your *husband* will not flatter his *wife;* and as flattery is the food with which you have been won, you will be so hungry for it when it is withheld, that you will literally starve to death. And worse than all, a man who flatters much before marriage is very likely, after marriage, to flatter somebody besides his wife, which would be but bitter dregs for you to drink, to say nothing of the true food of love which you would inevitably lack.

"So I warn you to beware! In fact I do not want you to marry till you are twenty-five; and if you wait till that age, and go on improving every opportunity for culture, you will be fitted to grace a much higher position than you could now attain, and will be likely to win the love of a far nobler man than any one of those who will now flutter around you will ever be if you should marry him now. You will then have come to maturity, to a knowledge of yourself, and will be able to judge as to what you need in a companion to make you happy, as well as what kind of a companion would be most likely to be happy with you.

"Do not think, however, that you *must* marry, even then; and above all things do not ever marry for the sake of being married; for the sake of not being 'an old maid'; for if you do, you will deserve to be unhappy, and will be very likely to be so.

"Do not marry, either, for a home, or for anything but pure, true love, based upon common sense. Do not, above all things, indulge in that sickly sentimentalism that will lead you to fall in love with whoever pays you any attention, and to imagine that everybody who looks at you is dying to propose; for girls who conceive such ideas soon become disgusting to all who have anything to do with them."

If girls would be more self-reliant, more self-poised, and accept themselves as beings to be cultivated and improved, and taken care of by themselves so far as possible; and if parents and teachers would instil these ideas into the minds of even little girls, there would be fewer unhappy marriages, fewer unloved children, fewer divorces, and far less evil and crime than is now running rampant through every nation and all grades of society. Teach boys the purest, truest, noblest manhood, but however much we teach, it is the girls, the women, who must be self-centred, before men can be brought to their highest estate; before the race shall attain its God-given place, "a little lower than the angels."

MRS. E. P. MILLER, M.D.

WINTER BIRDS.

WITH whatever feelings of gladness we welcome back the birds, when the genial air of spring recalls them to their summer haunts, it is with even a more tender interest that we watch our winged visitors through the dreary winter. Birds are so associated in our minds with the thought of summer beauty, that we have a sort of tender pity in our hearts when we see them flying about over bare fields, or among leafless trees, and the most unobservant are then apt to remark their flight. Pity is, perhaps, not an appropriate emotion, but a very natural one, for there is something so akin to humanity in the air and manners of the feathered tribes, that it seems as though they ought to appreciate the comforts which we enjoy.

The migration of birds, the laws by which it is governed, the time and manner of its occurrence, make up a subject full of interest, and the most careful observations of science have not entirely freed it from mystery. There are several reasons why it has not been easy to do so. The causes of migration are not always entirely clear. One, doubtless, is the very human consideration of the "bread-and-butter question;" but

they are not admonished by the pangs of hunger, because they generally leave their summer homes long before their supplies have failed them. It can not be wholly instinct; because these migrations seem to be largely influenced by circumstances, and if these be entirely favorable, they sometimes do not take place at all. Besides this, single individuals, whom we can not suppose to be exceptions to any general law of instinct, commenced. But some subtle perception of atmospheric conditions is possessed by these delicate organisms by which they are informed of coming cold long before the air has lost its softness, and with a wise forethought they anticipate its advent by a southward flight.

The most of those birds which visit the United States during the winter, come to us from far more frigid regions, and as their

Fig. 1.—Common Snow-Bird.

often linger about their old haunts all winter, even when food is scanty and their lodgings are not very comfortable. Temperature and other conditions of the atmosphere have more to do with the change of abode than anything else, although certainly the abundance or scarcity of food has an important influence, particularly after the journey has rapid flight brings them quickly from their northern homes to our borders, we know that many of them must be able to endure severe cold. Those general favorites, the snow-birds (Nephea Hyemalis), which seem to delight in the atmosphere of storm, cross the Canadian boundary as early as October, and travel southward by degrees according

to the weather. When the snow falls in merry whirls, then in large companies, generally composed of one or two families, they come wheeling and tumbling about in the air as though in a very ecstasy of glee, so close do they keep to each other that they come constantly into contact as they alight upon the pure white sheet of snow, and run about over it like a merry party of children at play. When their frolic is over they address themselves to business with hearty interest and an appetite sharpened, no doubt, by previous exercise. Every withered berry, every dried seed-vessel that is uncovered by the snow is diligently explored; and if the weather be severe, the company will come quite close to the house door to look for crumbs of charity, which they are generally sure to find. They pay early visits to the poultry-yard, where they avail themselves of the labor of the fowls in scratching the hard ground. Sometimes they join a covey of partridges with the same view to partnership in spoil, and will even partake of squirrels' dainties. They are true hopping-birds, and Audubon notices that they often leap up from the ground and dexterously seize the panicles of the pendant grasses. They are not generally found further north than Virginia in winter, spending the cold season chiefly in the Southern States, and retreating to the North early in the spring, for they are extremely sensitive to heat, and suffer from it. They are graceful in form, and have beautifully-shaded plumage, though sombre in tint.

The head and neck of the male is black, the wings a sober gray, and the breast white, slightly tinted with touches of buff. The female very nearly resembles her mate; the tints are softer and more like those of the dove, the head and neck being a smoke-blue, and the back dove-color. Their flesh is much esteemed, and epicures are willing to pay a high price for so delicious and juicy a morsel, and in consequence, multitudes of the tiny creatures are shot for the Southern market. They leave Louisiana in March, and by easy journeys reach their summer abode. They nest and rear their young chiefly in the eastern part of the Alleghany Mountains, in June; are found as far north as Maine and the northern lakes in the United States, and also in Canada.

Fig. 2.—Snow Bunting.

They do not sing during cold weather, but at the return of spring they learn a

simple love-song, which they warble softly to their mates while engaged in building their tiny nests of straw, hair, and moss in low bushes. They feed largely upon huckleberries in summer, frequenting the mountains, where they grow abundantly.

But it is as the sprites of the snow-storm that they interest us most, descending upon us as if from the clouds, and vanishing again with the snow wreath in the sunshine.

Like some other winter birds, they make a cosy little nest or burrow for themselves in some neighboring hay-stack, or other convenient spot, where they may retire from the extreme severity of the weather, their usual shelter being the boughs of the evergreens.

Fig. 3.—Winter Wren.

The bird popularly known as the snow-bird of our Northern States is the Snow Bunting (Plectrophanes nivalis). Further north it is called the "White Bird." The breast and lower part of the wings are white, the back is brown and marked with black, and also the wings. It closely resembles the common snow-bird in its habits, but it breeds upon the shores of the Arctic Sea, and in the winter extends its migrations into the United States. Only one nest has been found within their limits, and that in the White Mountains of New Hampshire. This bird feeds on grain and seeds, and has a sharp eye for any stray berry that may be seen gleaming amid the snow, and obtains insects when it can.

They do not seem to delight in storm quite as much as the snow-bird, and are rather driven before it, often seeming to suffer the pangs of hunger, and uttering short, lively cries of congratulation when they discover an ample supply of food. They prefer to be near the water, and generally seek such situations for their nests; but we know them only as guests, as they nest in the northern Arctic islands. The nest is made of grass and straw, lined with hair, in lowly situations. A touching story is told of such a nest being found upon the breast of a dead Esquimaux child which lay unburied. These birds, like most of our winter friends, are very social. It is said that they have been seen in high latitudes in immense flocks of as many as a thousand at once. They run upon the ground with a light, swift motion. As they migrate from one place to another in the night, they come upon us by surprise, and often enliven the snow-covered landscape by their company.

They fly compactly in large flocks close together, and alight upon fences and low buildings in crowds. They are capable of lofty and protracted flight, but when they alight they generally remain a long time in one neighborhood, if not disturbed by sportsmen; but like most winter-fed small birds,

their flesh is delicious, and they tempt the cupidity of man by its ready sale, and their pretty, confident familiarity is soon exchanged for a shy timidity.

We have spoken fully of these two species because in their habits they form a type of many others; and with but slight variations what we have said of them may be said to be generally true of many of the smaller kinds of our winter birds. The robin and the wren, our childhood's friends, often call upon us for hospitality, and are sure of a welcome. They are both sociable and friendly toward man, and the wren is so bright and cheerful with its quick, brisk movements and pleasant song, that it can not fail to be a favorite. So persistent is its cheery, brave spirit that it will sing even in the midst of a pelting storm. It nests in the White Mountains, and like fashionable humans, leaves them on the approach of cold weather, and abides the winter in New York and Pennsylvania. It is of a dark brown hue, crossed with dusky touches upon the back wings, the neck and breast being of a dingy white.

This little creature is sometimes found, also, in the Rocky Mountains, but more abundantly amid the eastern ranges.

A bird which is often mistaken for the snow-bird is the chickadee, which often consorts with other kinds—the nuthatches and creepers, for instance; but they more frequently visit the woods, while the chickadee is attracted to the country gardens by the seeds of the sunflowor, of which it is very fond. We have seen them alight in such numbers upon the withered flowers and stalks at to quite cover them. They hang by their feet in all possible and impossible positions, and hold the kernel often in the claw as a parrot does. They resemble the snow-birds somewhat in appearance, but may easily be distinguished from them by any but a very careless observer.

ANNIE ST. CLAIR.

THE ASH-GIRL.

A beggar girl is standing by gay Stuyvesant Square,
With listless eye she watches the merry children there;
For they are not *her* playmates; even had she wish to play,
Full well she knows each one would turn from her with scorn away.
When, from a gentle lady who passes in the street,
Where wealth and its strange contrasts of want and misery meet,
She hears the sweet "My darlings!" and the children's eager cry,
"Oh, mother! mother!! muzzer!!!" while a bright smile meets her eye.
Her hungry heart beats faster, tho' not for *her* the word,
For in her hovel home no soft, caressing tone is heard.

At first she passes on her way with tone of mocking jeer;
But soon, unto her eye there comes the all-unwonted tear,
As she softly says, "I wonder, oh, I wonder, if there be
In all this great, wide city, a mother kind for me?"
A strange, wild hope now filleth the little ash-girl's heart,
And of her very life, it grows still more and more a part.
The joy, which of that hope is part, her pallid face reveals,
As from the hut—her task fulfilled—each day she softly steals.
And unto every one she meets, she brings the eager plea,
"Oh, do you know a mother? A mother kind for me?"

Thus, daily going forth, at last it seems a useless quest.
Some answer, but with idle words, what seems an idle jest.
Some scornful say, "What impudence; a beggar, as I live!"
Some give a dinner, but, alas! they have no love to give.
One speaks of the asylum; but charity is blind.
It is not charity she seeks—she seeks a mother kind.

At last, one day in weariness, her wild hope nearly gone,
She sits beside a home of wealth, yet homeless and forlorn.
She sees a funeral train pass out, to bear a casket small,
Unto the final resting-place, which waiteth for us all.

Then lingering, sees re-enter, the pale mother—but the door
Has scarce closed on the mourner—in her sorrow weeping sore—
Ere it opens to the ash-girl, who with pallid cheek and brow
Says, "Oh, may I see the mother? Please *do* let me see her *now!*"
"Go away!" exclaims the servant. "You will vex her with your din."
But a sweet voice answers, "Debby! Let the little child come in."

Such a room she ne'er hath entered, with its curtains rich and rare;
And its carpets soft as velvet, but the gentle lady there,
Tho' with grief her face is shadowed, is the fairest sight to see.
So she trembling, asks, "Dear lady! can you love a child like me?
Oh, I know I am not lovely, and I know I am not sweet,
But I want—I want a mother!" falling prostrate at her feet.

With clasped hands she weeping waiteth—quick the gentle lady's eye
Is turned tear-blind from the stranger, but she hears the bitter cry:
"Oh, I do so want a mother! but in all the world I see
There is no tender mother for a beggar-girl like me!"

Then, in a moment turning, she softly thus replies:
"It is as if my angel-child were calling from the skies,
"'Oh, mother! take the little one who pleads beside your knee,
And be to her as true and kind as you have been to me!'
Rest thy tired head, my darling, upon my bosom, so,
And I will be to thee as kind a mother as I know."
Thus the long, long search is over, and the pilgrimage is past—
As the weary child is folded to a loving heart at last.

MRS. JULIA A. CARNEY.

WHY MAR THE IMAGE?

CHAPTER I.

A "SOCIETY" MARRIAGE.

"EUNICE, are you happy?"

The young girl, fair as a lily and as little qualified to endure the rough by-ways of life's experience as the tube-roses that sent an intoxicating aroma through the pent-up atmosphere of a Fith Avenue mansion, stood in her mother's presence and answered only with a tear.

"You are bewitchingly beautiful," continued her mother, "and I am not at all surprised that the son of a baronet has claimed your hand in marriage. Your *trousseau* is elegant! There's nothing in our set that equals it. My darling will create a genuine sensation in the London court. What! In tears, my child?"

The daughter gave a gesture of impatience.

"Has your married life been a happy one, mother?" she asked, abruptly.

Mrs. Lathrop uttered a half-smothered sigh. What her married life had been was her own affair, she thought. But, as she stood before her child, struck dumb for the nonce by the earnest question, memory struggled to assert its sway; and at last her voice gave utterance to an involuntary ejaculation of agony, as she remembered the family vault in stately Greenwood, wherein the mortal remains of all of her children slept, except the one fragile flower now standing in her presence, waiting in her costly habiliments to be gathered by a suitor of gentle blood, to grace the home of a descendant of the royal line of a foreign realm. And this exotic stood before her, shivering with a nervous dread as she listened to the ceaseless pattering of the pitiless rain.

"You don't answer me, mother?"

Mrs. Lathrop sighed; "I might be happy," she said at last, "if I had my other children with me; but, like Rachael, I can only refuse to be comforted because they are not."

"I feel more like wearing cypress wreaths than orange blossoms, mother! How I wish the night were not so stormy."

"Never mind, dear," said the mother, soothingly. "The guests will all come in carriages. The storm will not hinder the enjoyment of the evening."

"I may be superstitious, and I suppose I am, but I do dislike to be married on a rainy night."

"Never mind, dear. It was just such a time as this when I was married."

"I have a positive notion to send an excuse, and decide that I won't be married at all!" exclaimed Eunice.

"Open the window, Bridget. The air is close. It's the tube-roses," said the mother, noticing the pallor on her daughter's lips.

"Will you go down and excuse me, mother? I don't want to be married at all!" cried Eunice, throwing herself into a chair, thereby sadly deranging her flowing veil and fragile orange wreaths.

"*Mercy, child!* You'll spoil your clothing if you sit down in that way! And, as to excusing you to the guests, the very idea is absurd! Take some wine, dear. There; you'll feel better now."

The mansion was ablaze with light. Servants in livery waited at the arched portals; carriages lined the street; a canopy led the way from the brown-stone stile to the brown-stone steps; and a carpet, subdued in colors and costly in fabric, protected alike the trailing skirts of beauty and the dainty boots of fashion from the inclement storm that howled a pitiful *Miserere* through the dismal, sodden streets wherein a detachment of Metropolitan police kept guard, holding at bay the curious throng of idle lookers-on whose knowledge of high-life is mainly gleaned from glimpses stolen through such slight advantages for observation as such a wedding may afford.

In one of the many carved alcoves in the triple parlors where expectant guests were waiting, stood the officiating clergyman and the impatient bridegroom.

These men had known each other from boyhood, and there had ever been a strong bond of sympathy between them, in spite of the fact that they were as perfect opposites as are ever created in the image of man.

The bridegroom was the third son of an English baronet, and had inherited neither wealth nor fortune in his own country, so he had crossed the water in search of a fortune, which he was now ready to grasp in the person and effects of General Lathrop's daughter. His companion was the eldest son of an English clergyman of the Established Church, who would never have adopted the ministry from choice, but who had been forced into the surplice despite the desire of his judgment to walk and work in the lead of such investigations as have made famous the philosophy of a Combe, a Mill, a Spencer, or a Huxley.

"The women have a terrible amount of fuss and weariness over nothing," exclaimed the waiting groom elect.

"Plenty of time after you're married, Mr. Sargeant," smiled his friend.

"What's the matter, Harcourt? You look a whole funeral sermon of serious forebodings, and make a fellow nervous."

"Have you ever studied the temperaments, Mr. Sargeant? Do you understand the influence of one temperament upon another in the matrimonial relation?"

The bridegroom-to-be looked into the face of his taller companion with a blank gaze of inquiry.

"I beg pardon. I think I fail to comprehend your question," he said, hesitatingly.

"Have you ever studied the physiological laws of generation? the proper adaptability of each mental and physical organization to its counterpart in the opposite sex? In a word, do you know what you are about to risk? Have you calculated the consequences of this marriage?"

"Oh! Now you talk like a sensible man. Upon my word, Harcourt, I began to tremble for you sanity. Of course I've calculated the consequences. General Lathrop makes a handsome settlement of real estate upon me unconditionally, and bestows ten thousand dollars in a lump upon my wife as a wedding present. Then her mother and other friends are loading her down with valuable gifts. One necklace alone, that was sent up to-day from Tiffany's, is worth three thousand pounds sterling."

"And, is it possible that you expect to purchase happiness with these baubles, my friend?"

"They'll at least purchase wine and beefsteak, and pay a gentleman's little bills, Harcourt."

"But will they insure you a happy household and a harmonious family of sons and daughters to rise up and call you blessed?"

"Again you carry me beyond my depth. You always were a metaphysical puzzle to me. But then, a clergyman must needs live in the clouds. Of course you are not expected to know much about the value of money. The women, God bless their simple souls, are always on the look-out for opportunity to cater to the caprices and satisfy the needs of their spiritual advisers. But the third son of an English baronet, with healthy elder brothers, entailed estates, and heavy mortgages as his forlorn dependence, who must meet the claims that rank and society fasten upon him, despite his impecuniosity, soon gets ideal moonshine out of his head, and then he goes into the practical investigation of such mercenary considerations as he finds necessary to liquidate outstanding obligations. But come! The guests are all assembled by this time. Deuced uncomfortable night, this."

The two gentlemen emerged from behind the arched alcove, and attendants took the bridegroom elect in charge, leaving the clergyman to his own meditations. He had not long to wait. Sliding doors disappeared in the walls of an adjoining room, and the bridesmaids and groomsmen entered the brilliant parlors and took their allotted places, followed by the groom in indispensable black, with regulation vest and gloves, upon whose arm Mrs. Lathrop leaned, fairly resplendent in diamonds and Mechlin lace, and wearing a smile that bore no trace of the sorrowful outburst that had occurred in her daughter's chamber. Then the bride appeared accompanied by her father, an anxious, shriveled, nervous, angular man, who followed the eyes of his wife with a solicitude that would have been painful to behold had it not been laughably ridiculous. The General was at home in a military campaign, but he felt sadly out of place in his own parlors.

All was ready. The young couple stood beneath a wedding bell of whitest and costliest flowers, and the gay throng of guests waited deferentially within the glow of the massive chandeliers, which the dark storm without mocked unavailingly.

Mr. Harcourt, heeding not the giddy assemblage, busied himself in an agonized reverie with his own forebodings, as he muttered half audibly, "Those who sow the wind must reap the whirlwind."

As rapidly as lightning his thoughts ran on, down through the vista of the unfolding years.

"Temperaments too much alike," he soliloquized; "Phrenological developments incompatible. Woman too much brain for her body. Man more body than he needs for his brain. He's weak in the upper story. Hair thin and lanky; eyes blue and watery; chin too narrow; moustache pale and sickly; neck too thick for a narrow top-head. Self-esteem and Approbativeness inordinate; little Firmness, small Caution; Causality deficient; large Benevolence, little Reverence; ditto Hope; Mirthfulness and Alimentiveness large; inclination to apoplexy. Girl fair and slight. Has large Spirituality, and he has none; has little Caution and excessive Hope, great Reverence, little Self-esteem; neck too thin, chest too narrow, and Vitativeness small. I can't conscientiously marry such a couple to each other."

While this soliloquy was pending, the bridal party stood in confused expectancy.

Mr. Sargeant thought all sorts of things, and looked daggers and appeals by turns.

Suddenly the clergyman recollected himself and grew greatly disconcerted. The awkward silence was fearful. The night winds shook the shutters as with a threatening admonition, and the situation was too overpowering for Mr. Harcourt's resolution.

Stifling the conviction that the time had now come for a practical application of the warning that rang in his ears, he proceeded to recite the beautiful marriage service of the Episcopal Church. But while his lips repeated the echoes of his voice as he mechanically performed his allotted part, his heart re-echoed the understanding of his brain, and he mentally ejaculated again and again the Scripture text, "They that sow the wind shall reap the whirlwind."

The service was over at last. And while the congratulations of the crowding guests welled through the great mansion, and rippling laughter expressed the thoughtlessness of a hundred unreflecting minds, Mr. Harcourt looked as with a prophetic eye through the coming years, and as he gazed, beheld the blighted fruit of an ill-assorted marriage laid away in premature graves.

The unsatisfactory result of the effort of two natures to blend, in whom there was no blending, became to him a vivid knowledge; and as he gazed upon the bride he felt himself a criminal, for had he not assisted without protest in performing a ceremony that would insure a harvest of whirlwinds for the fragile lily who, in her ignorance, had spoken her own sorrowful doom? And was he not the great offender, since he had known his duty and had done it not? Had he not sinned against light and knowledge?

The wedding festivities that followed rang in his ears like the knell of doom.

Mrs. Lathrop, as became the wife of a General in high standing in the regular army, shut the door of her heart against her buds of thwarted humanity that slept in the family vault, and was all smiles and bows, and graciousness. The General, a nervous and yet lymphatic man, lean from the effects of inordinate smoking, and anxious because out of his element in fashionable society, moved uneasily through the parlors, thinking possibly of his daughter's future happiness or misery; possibly of his blighted buds in the Greenwood vault, but probably of the coming political contest wherein he was known to have personal interests at stake of very considerable moment to himself and his relations.

The festivities were prolonged till the wee small hours of the morning. Mrs. General Lathrop had insisted that the wedding should take place at the family mansion instead of the church, in the evening instead of the morning, and that the girl-wife should spend the first twenty-four hours of her new and strange existence under the parental roof. All of which was highly commendable, but it was to be regretted that she did not go yet farther, and dispense with the night-long revelry and the almost Bachannalian feast that followed the wedding ceremony.

What wonder that young people make mistakes! What wonder that they so often wreck their nuptial bark even in the ceremony of launching it upon the ocean of matrimony. When parents who have proved by their own sad experience that life's voyage, as they have made it, has brought to them Sodom apples instead of the golden fruit of the tree of Life, yet fail to teach their children that, in order to fulfill the high purposes of a holy marriage, they must needs follow the behests of nature in preparing the human body for the proper imprints of God's image upon the living tabernacles that are to be the outgrowth of a union that the wise shall judge by its fruits. Why do not parents learn, as by intuition, that such a bark to be successfully launched must be sent from the ways of the nuptial contract into an ocean unruffled by waves of excitement, and that they who are to guide it must not feast nor fast, or in any other unnatural way overstimulate the vital economy of life that permits no waste of its forces to pass unavenged upon the offspring to the third and fourth generation?

The father and mother of Eunice Lathrop lacked sufficient stamina—possibly they lacked the knowledge—to break down the unnatural demands of society by giving a private wedding, that they might thus consign their newly-married daughter to her strange relation and its reasonable consequences, with a mind and body unstimulated by wines and dancing, or wearied by late hours and giddy company.

If there is one relation above all others to which men and women should consecrate themselves in the holiest calmness and most devout self-and-society abandonment, it is in this important one, where they are acting not for themselves alone, or chiefly, but for the great future, in which human lives are to be unfolded, either as perfect images of the great Author, or as monstrosities, or sickly, enervated weaklings, which are but caricatures of the original design. Men and women do not "gather grapes of thorns nor figs of thistles," yet they live and act as

though they expected such results to follow their indiscriminate sowing of tares.

The night had wept itself into a fitful slumber, broken only by the sobs of the retreating wind as he gathered his forces and hied away for a renewed conflict in another quarter. The long line of carriages, freighted with revelers from the wedding banquet, drove through the otherwise deserted streets; the canopy and carpet were removed from stile and doorsteps; policemen and ragged boys betook themselves to other scenes of excitement; the arched portal of the mansion was closed and double bolted.

Mr. Harcourt returned to his home in the family of an intelligent husband and wife, with whom he had often read and talked concerning the best and fairest, but oftenest marred and despoiled of all God's creatures, those made in His own image, after His likeness, who were created male and female, and given joint dominion over all the earth; and, as he told of the wedding and the wedded, and of his own self-condemnation under the part enacted by himself, he rose suddenly to his fullest stature, and called Heaven to witness that he would never again sell his soul and his understanding to unite in marriage two lives whose mutual inadaptability would make but a bitter mockery of God's and man's holiest ordinance, thwart humanity of its birthright of health, harmony of development, and length of days, even on the very threshold of its existence.

At ten o'clock on the next morning after the wedding, all was bustle and confusion in the home of General Lathrop. The bridal party was to visit Niagara and Saratoga, and revel during the hottest summer months in the gay society of Long Branch. Mr. Sargeant, full of that pride in the mother country which Englishmen rarely subdue, proposed a wedding tour across the water, to which his mother-in-law positively refused, for the present, to consent.

When pressed by her daughter for an explanation, she said, enjoining the utmost secrecy, "My bridal tour was an ocean voyage. Your father was accustomed to the water, and experienced no inconvenience from sea-sickness, but I was dreadfully afflicted. I may not tell you all about it, dear, and would to God it were not my duty to tell you anything, but I became so disgusted with everything and every body, and with your father especially, that nothing but human law and human custom have bound me to him since. I confess that I'm ashamed of it, but I can not help it. This aversion to your father, of which he does not dream, and which I would die rather than the world should know it, has been my life-long curse. Of my five children I have only you left. The others, Heaven pity me and them, were all blighted in their babyhood, and were laid away like worm-eaten buds. They were disgusted with life before they saw the light, and the only reason you have lived to hear this awful story, is because your father was absent from home during the most of your pre-natal life. It is a fearful revelation, but a true one. Daughter, you must not run the risk of my experience. Life is hard enough to bear, even if we use it without abusing it. Your father is a good man, and intends to be just, Eunice. I am not complaining; I would only warn you. General Lathrop has suffered the pangs of bereavement as well as I. But oh, a little knowledge of the laws of nature and a little obedience to her behests would have saved us all this trouble."

"Mother!" cried Eunice, her eyes flashing with anger; "why did you not initiate me into the knowledge of some of your dearly-bought experience long ago?"

Mrs. Lathrop could not answer.

A. S. DUNIWAY.

(*To be continued.*)

GIVING JOY TO A CHILD.—It was said by Douglas Jerrold:

"Blessed be the hand that prepares a pleasure for a child, for there is no saying when and where it may again bloom forth. Does not almost everybody remember some kind-hearted man who showed him a kindness in the dulcet days of his childhood? The writer of this recollects himself, at this moment, a barefooted lad, standing at the wooden-fence of a poor little garden in his native village, while with longing eyes he gazed on the flowers which were blooming there quietly in the brightness of a Sabbath

morning. The possessor came forth from his little cottage; he was a wood-cutter by trade, and spent the whole week at work in the woods. He had come into the garden to gather flowers to stick in his coat when he went to Church. He saw the boy, and breaking off the most beautiful of his carnations—it was streaked with red and white—he gave it to him. Neither the giver or the receiver spoke a word, and with bounding steps the boy ran home. And now here, at a vast distance from that home, after so many events of so many years, the feeling of gratitude which agitated the breast of that boy expresses itself on paper. The carnation has long since faded, but it now blooms afresh."

Kindness begets joy and love, and love begets trust, and all the better feelings; while cold, repulsive selfishness, begets harshness, neglect of others. Children should be permitted to bask in the sunshine of kindness and affection, especially at home. This would call out their confidence, and secure their obedience. Parents, love your children, that they may love and obey you.

GEORGE SMITH,

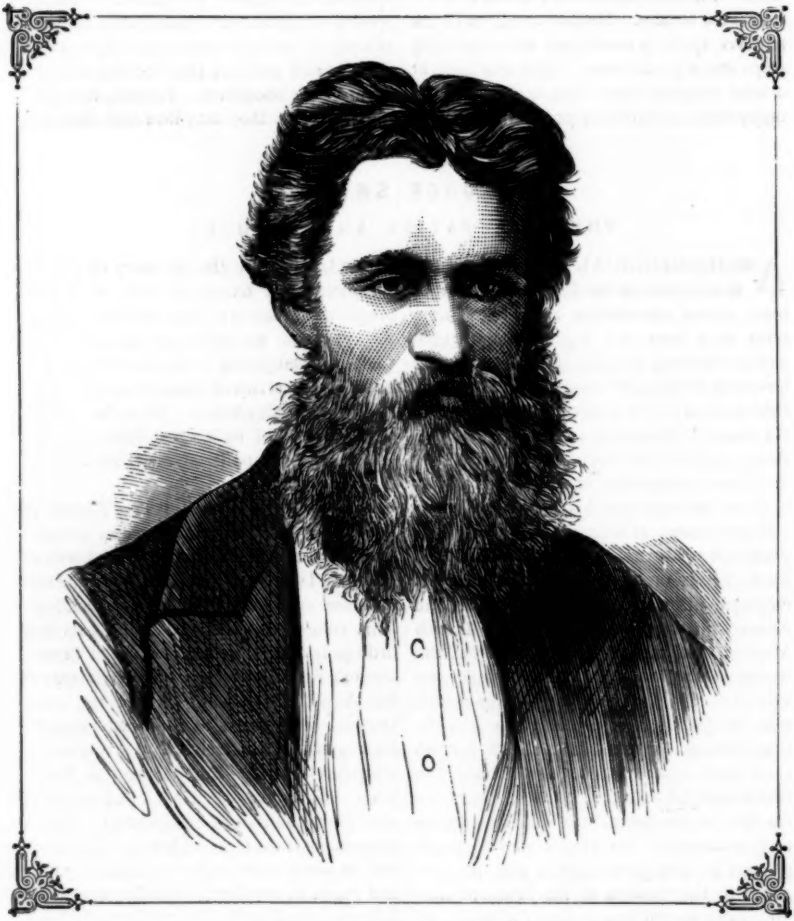
THE ORIENTALIST AND AUTHOR.

ARCHÆOLOGICAL and Oriental research mourns the death of this gentleman, whose discoveries, at an age when most men have but begun the practical work of original investigation, had crowned him with honor, and awakened the highest expectations of his future accomplishments. He was but thirty-seven or eight years old. An appreciative sketch, which was published in *Nature*, states that Mr. Smith was born of poor parents, and his school-education was terminated at fifteen, when he was apprenticed to Messrs. Bradbury and Evans to learn the art of engraving. While in this employment he often occupied half the time allowed for dinner for visits to the British Museum, and saved his earnings to buy the works of the leading writers on Assyrian subjects. Sir Henry Rawlinson was struck with the young man's intelligence and enthusiasm, and furnished him with various casts and squeezers, through which Mr. Smith was led to make his first discovery, the date of the payment of tribute by Jehu to Shalmaneser. Sir Henry was so much pleased by this performance, that he proposed to the trustees of the Museum that Mr. Smith should be associated with himself in the preparation of the third volume of the "Cuneiform Inscriptions of Western Asia." This was in 1867, and from that year Mr. Smith entered upon his official life at the Museum, and devoted himself to the study of the Assyrian monuments. The first fruits of his labors were the discovery of two inscriptions, one fixing the date of a total eclipse of the sun in the month Sivan or May, B.C. 763, and the other the date of an invasion of Babylonia by the Elamites in B.C. 2280, and a series of articles in the *Zeitschrit für Ægyptische Sprache*, which threw a flood of light upon later Assyrian history and the political relations between Assyria and Egypt.

In 1871 he published "The Annals of Assur-bani-pal," or Sardanapalus, transliterated and translated, a work which involved immense labor in the preparation of the text and the examination of diverse readings. This volume was followed by an excellent little pamphlet on the chronology of Sennacherib's reign and a list of the characters of the Assyrian syllabary. About the same time he contributed to the newly-founded Society of Biblical Archæology a very valuable paper on "The Early History of Babylonia" (since republished in "The Records of the Past"), as well as an account of his decipherment of the Cypriote inscriptions which had hitherto been such a stumbling-block and puzzle to scholars. The Cypriote syllabary as determined by him has been the basis of the later labors of Birch, Brandis, Siegismund, Doecke, Schmidt, and Hall.

It was in 1872, however, that Mr. Smith made the discovery which has caused his name to be very generally known in Europe and America. His translation of "The

Chaldean. Account of the Deluge" was read before the Society of Biblical Archæology on the third of December, and, in the following January, he was sent to excavate on the site of Nineveh by the proprietors of the *Daily Telegraph*. After unearthing the missing fragment of the deluge story, he returned to England with a large and important collection of relics and inscriptions. Among these were fragments which recorded the succession and duration of the Babylonian dynasties; a paper on which was contributed by the discoverer to the Society of Biblical Archæology. It was in connection with these chronological researches that Mr. Smith's invaluable volume on "The Assyrian Eponym Canon" was written for Messrs. Bagster in 1875.



Shortly afterward he again left England to continue his excavations at Kouyunjik for the trustees of the British Museum, and, in spite of the difficulties and annoyances thrown in his way by the Turks, he succeeded in bringing home a large number of

fragmentary tablets, many of them belonging to the great Solar Epic in twelve books, of which the episode of the deluge forms the eleventh lay. An account of his travels and researches was given in his "Assyrian Discoveries," published at the beginning of 1875. The remainder of the year was occupied in piecing together and translating a number of fragments of the highest importance, relating to the Creation, the Fall, the Tower of Babel, etc. The results of these labors were embodied in his book, "The Chaldean Account of Genesis."

The great value of these discoveries induced the trustees of the museum to despatch Mr. Smith on another expedition, in order to excavate the remainder of Assurbani-pal's library at Kouyunjik, and so complete the collection of tablets in the British Museum. Mr. Smith accordingly went to Constantinople last October, and, after some trouble, succeeded in obtaining a firman from the Sultan's government for excavating. He set out for his last and fatal journey to the East in March, taking with him Dr. Eneberg, a Finnic Assyriologue. While detained at Aleppo on account of the plague, he explored the banks of the Euphrates from the Balis, northward, and at Yerabolus discovered the ancient Hittite capital, Carchemish—a discovery which bids fair to rival in importance that of Nineveh itself. After visiting Devi, or Thapsakus, and other places, he made his way to Bagdad, where he procured between two and three thousand tablets discovered by some Arabs in an ancient Babylonian library near Hillah. From Bagdad he went to Kouyunjik, and found, to his intense disappointment, that owing to the troubled state of the country it was impossible to excavate. Meanwhile, Dr. Eneberg had died, and Mr. Smith, worn out by fatigue and anxiety, broke down at Ikisji, a small village about sixty miles northeast of Aleppo. Here he was found by Mr. Parsons, and Mrs. Skene, the consul's wife at Aleppo, and was conveyed by easy stages to Aleppo, where he died on August 19th. He has left behind him the MS. of a "History of Babylonia," intended to be a companion volume to his "History of Assyria," published by the S. P. C. K. last year.

A remarkable incident relative to his death, which has been given a wide circulation in the English press, and stands unchallenged as to its truth, is the following:

"This gentleman (Mr. Smith) died at Aleppo on the 19th of August, at or about the hour of six in the afternoon. On the same day, and between three-quarters of an hour and an hour later, a friend and fellow-worker of Mr. Smith's—Dr. Delitzch—was going to the house of a third person, the author of the account of the labors of the departed scholar, which appeared in *The Academy*. In the course of his walk Dr. Delitzch passed within a stone's throw of the house in which Mr. Smith lived when in London, and suddenly heard his own name uttered in a 'most piercing cry,' which thrilled him to the marrow. The fact impressed him so strongly that he looked at his watch and noted the hour.

"Dr. Delitzch, who strongly disavows any superstitious leanings, was ashamed to mention the fact to his friend on reaching that gentleman's house, although on his return home he owns that his nervous apprehensions of some mournful event in his own family found relief in tears, and that he recorded all the facts in his note-book that same night. Dr. Delitzch told the story on the 5th inst., at a friend's breakfast-table, with all the circumstances mentioned, including the hour at which he heard the shrill cry. He distinctly denied having been thinking of Mr. George Smith at the time."

His portrait indicates an active temperament, a tolerably strong physical organization, and a vigorous perceptive intellect. He was evidently an earnest, thorough worker; one who entered upon an agreeable task with enthusiasm, and perhaps was inclined to forget the care of health and strength in the absorption of his pursuit. We regret his death on account of the young family it has so sharply bereaved, and on account of the serious loss experienced by Bibliological inquiry, in the deprivation of that marvelous instinct for ascertaining the substance of an ancient inscription which distinguished him, and gave him the name of "the intellectual picklock."

THE LIGHT-SIFTER.

WE may say that it was only the other day that the true nature of LIGHT was discovered, and, indeed, it is quite possible that the ultimate theory of its nature has not yet been announced, and that we have only taken a step in the right direction, and may need *more* light *upon* light before we can deem ourselves fully *en*lightened upon this subject. According to the theory now universally received, the whole universe is filled with a boundless ocean of highly-attenuated matter, to which has been given the name Ether. This ether when at rest can not be perceived by any of our senses, but the rush of the heavenly bodies through it causes a friction which without doubt will finally bring the swiftest of them to a dead stop, though, after a lapse of so many millions of ages, that the youngest of us need not borrow trouble by speculating on the consequences when those slow times arrive. It fills all space; it mingles, though never combines, with the atmosphere; and is constantly present in all the pores between the atoms of both solid and liquid substances. If you throw a stone into a pool of perfectly still water, from where the stone strikes waves in regular succession proceed in all directions. Now, ether is a fluid capable of being acted upon in a similar manner. Its smallest particles are in constant vibratory motion, and, when the waves come closely enough after one another, they produce the sensation we call light. A luminous body, then, means one which has the power to set ether in motion, so as to produce upon our eye the sensation of light.

There is a very close analogy between light and sound. A harp-string or fiddle-string set in vibration sets the air all around in undulatory motion. The waves of air surge into our ears at the rate of about 1,100 feet in a second, strike against the tympanum, and occasion the sensation we call Sound. Air in motion is the cause of hearing; ether in motion is the cause of seeing. So, really, our eye is only a marvelously delicate and refined species of ear. The words of Job, afterwards amplified by the genius of Shakespeare,* "the morning stars sang together," is more than a poetic fancy. The words seem like a Divine hint of this modern discovery that there is an essential likeness between seeing and hearing.

A musical note, as distinguished from mere noise, is produced only when the impulses of the air reach the ear at regular intervals. Its *pitch* depends on the number of impulses in a given time; the greater the number of vibrations in a second the higher will be the note produced. When there are less than sixteen sound-waves in a second, or more than 40,000, the ear is no longer sensible of a musical sound. This brings us to see the

ANALOGY BETWEEN MUSICAL SOUNDS AND COLORS.

Colors are to the eye what musical tones are to the ear. A certain number of ether-impulses in a second against the eye is necessary to produce the sensation of light; if their number be above or below a certain number, they are no longer recognized as light. The number of these waves striking the eye in a second so as to cause the sensation of light is almost incredible; they vary from 450,000,000,000 to about 800,000,000,000. If these waves are propelled against the eye at the slower rate, they produce the sensation of dark red, and, as they increase in rapidity, they produce yellow light, and so on through green, blue, and violet, at which pace our eye becomes incapable of measuring the ether-motion. But, meanwhile, the ether-waves may go at a vastly greater speed; and some of them go so slow as not to be perceived by the eye at all. What become of all these waves rolling in perpetually on the shore of human-

* " . . . Look how the floor of heaven
Is thick inlaid with patines of bright gold:
There's not the smallest orb which thou beholdst,
But in his motion like an angel sings,
Still quiring to the young-eyed cherubim.
Such harmony is in immortal souls,
But whilst this muddy vesture of decay
Doth grossly close it in, we can not hear it."
—MER. OF VENICE.

ity? Are they useless and unnoticed? By no means. These vibrations, slower than light-waves, as we may call them, produce the sensation of heat; while those which are too rapid for light-waves reveal themselves by their powerful chemical action. Professor Stokes has actually seized these more than lightning-express beams, and moderated their pace so as to compel them to give the sensation of light. The course of the vibrations, as they successively produce sound, heat, and light, has been interestingly described as follows:

"In the middle of a large, darkened room, let us suppose a rod set in vibration and connected with a contrivance for continually augmenting the speed of its vibrations. I enter the room at the moment when the rod is vibrating four times in a second. Neither eye nor ear tells me of the presence of the rod, only the hand which feels the strokes when brought within their reach. The vibrations become more rapid, till, when they reach the number of sixteen in a second, a deep hum strikes my ear. The tone rises continually in pitch, and passes through all the intervening grades up to the highest, the shrillest note; then all sinks again into the former grave-like silence. While full of astonishment at what I have heard, I feel suddenly (by the increased velocity of the vibrating rod) an agreeable warmth, as from a fire diffusing itself from the spot whence the sound had proceeded. Still, all is dark. The vibrations increase in rapidity, and a faint-red light begins to glimmer. It gradually brightens till the rod assumes a vivid-red glow, then it turns to yellow, and changes through the whole range of colors up to violet, when all again is swallowed up in night. Thus Nature speaks to the different senses in succession. At first a gentle word, audible only in immediate proximity, then a louder call from an ever-increasing distance, till, finally, her voice is borne on the wings of light from regions of immeasurable light."

You can easily see that we can conceive the possibility of having more senses susceptible to those ether-waves which are slower or faster than those we now perceive. Indeed, it is possible that some of the lower animals have a different range of some of the senses from ours. For instance, the cow can probably hear slower vibrations than human beings; for animals generally have for their normal note the middle of the scale to which their ear is susceptible. But the normal tone of the cow is much lower than with us; so, possibly, it can hear further down the scale than we can. Our next step is a short and simple consideration of

REFRACTION OF LIGHT;

and, to understand this most easily, you must forget for a moment that light consists of waves of ether, and consider it as consisting of an infinite number of straight rays darting toward us, as though Apollo in the sun were hurling against us silver arrows from a golden bow. The refraction of

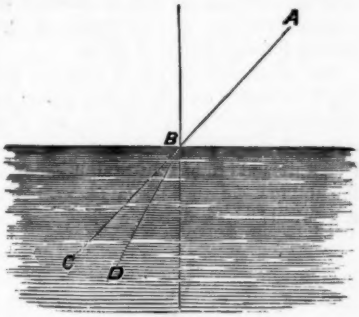


Fig. 1.—Refraction of Light.

light means the *bending* of light. A ray leaving the sun, or a lamp, or any other luminous body, proceeds in a perfectly straight line, but certain circumstances may change its direction. You know that light passes with more or less readiness, not only through space empty of everything except ether, but also through air of different degrees of density, through water, glass, and several other objects. Now, when a ray of light passes from any one of these mediums into another, or from thinner air into thicker, it is bent out of its straight course. The accompanying illustration will show what is meant. Here I must make a short digression. A ray of white light, such as proceeds from the sun, may be said to be made up of a bundle of rays, containing all the colors of

the rainbow from red to violet. You see these rays sifted apart in the rainbow, in the diamond-flash, and in the cut-glass of chandeliers or goblets. And now to return to the direct track. I have just said that a ray of light passing, say from air into water or glass, is bent out of its course. If you plunge a stick into a vessel of water, the stick will appear bent at the point where it enters the liquid, as in illustration, thus giving the appearance as if the stick were lifted or bent upward. This phenomenon is caused by refraction. But how is it, then, that when we look through a window, all things outside do not appear twisted out of their true position, like the stick crooked in the water? Because, though the ray is bent downward when it enters the glass, when it emerges at the other side the process is naturally reversed, so that it resumes the original direction. (See illustration of light passing through a plate of glass.)

Now let us take the ray of light, and putting it to further torture, as they treated unwilling witnesses in days of yore, see if we can not force it to disclose some secrets of its nature and origin. Instead of a rack or thumbscrew we shall use a *prism*. What is a prism? It is usually a piece of glass,

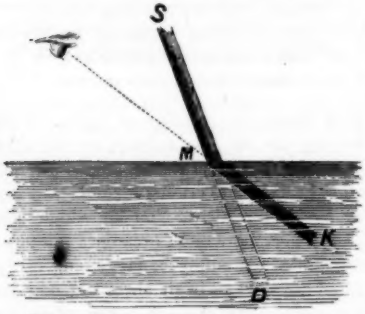


Fig. 2.—Appearance of a Stick in Water.

having five surfaces, two of which are parallel to each other, and three of which, bounded by parallel edges, cut each other at different angles—it is shaped like a wedge. The accompanying illustration will give a good idea of what is meant. Now pass one ray of light through it, as in the illustration. The ray A B entering the prism, is deflected in the direction B C; it passes to the opposite side of the prism; but, instead of recovering its former line of march as it would in passing through a window, it is still further deflected, and emerges in the direction C D. Now let us use, as is befitting, a dark room for the place of tor-

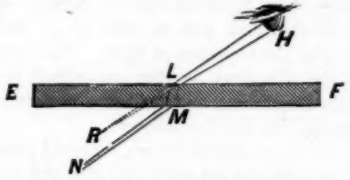


Fig. 3.—Light Passing Through Glass.

ture. Through a hole or narrow slit in the window-shutter we allow the ray of light to enter. We place a prism in its path, with the edge horizontal, and also in such position that the beam may enter it obliquely by one of its surfaces, and, passing through, may fall on a screen on the opposite wall. Now, see what shape our beam of light has taken. Instead of the white spot of light which entered the room, we see a band of colors which remind us strongly of the rainbow; the lowest color will be red, next above orange, passing by imperceptible gradations to yellow, and afterwards green, which then passes through the shades of greenish blue till it becomes a pure blue, then indigo, and finally ends with a violet color. This band of colors is called the *solar spectrum*. From this and from other experiments we learn that some of the rays of which this bundle of white light is composed may be refracted or bent more than others, or, as it was stated by Newton two hundred years ago, "Lights which differ in color differ in refrangibility."

We shall clinch all this argument by one more experiment. Place in the path of the colored beam, before it strikes the screen, another prism placed in a contrary direction; in a moment we recover our former ray of white light; for the second prism exactly neutralizes the effect caused by the first, and the ray proceeds as if nothing had happened.

So far, Sir Isaac Newton has been our guide and companion. But here he fails us.

As, when you are walking through some old castle or palace in Europe, an attendant leads you through two or three suites of apartments, and then hands you over to another, so we have traversed all the ground in this palace of science over which Newton may be our *cicerone*, and more modern men must now direct us. It is very wonderful that the mighty mind of Newton came so very near discovering all the marvels of the "light-sifter," and yet failed, and that only through a slight defect in the construction of his apparatus. He passed the beam of light through a circular hole instead of through a narrow slit, and this mistake was all that hindered him from discoveries as marvelous as any others he made.

In 1802, Dr. Wollaston passed the ray of light through a slit, and opened the way for a revolution in our theories of light, and for immense strides in astronomy and other sciences. When Newton examined the *solar spectrum*, he saw no break in its light; one color flowed into another all the way from red to violet. But, when Wollaston tried the slit, he found that the *solar spectrum* was really broken by a succession of beautifully fine black lines. These black

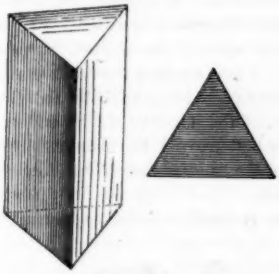


Fig. 4.—Form of a Prism.

lines are the same in number and position in every time and place where a solar spectrum is produced.

In 1814, a German, named Frauenhofer, actually made a map of these lines to the number of five hundred and seventy-six. He then imprisoned a ray of light from the stars, passed it through his prism, and made the important discovery that the black lines in the stellar spectrum were very different in number and position from those in the solar spectrum. Since then, other close observers have worked at these dark lines in the solar spectrum, and have drawn most beautiful and elaborate maps, showing at least two thousand lines of various thicknesses.

In 1830 an important improvement was made in the apparatus of the "light-sifter," or as we may now call it, "the spectroscope." A lens was introduced in front of the prism, so arranged that the slit was in the focus of

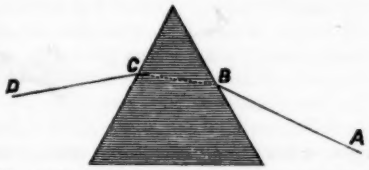


Fig. 5.—Deviation of a Luminous Ray by a Prism.

the lens. Then, in order that the instrument may be used at any time of day, all light except that under examination must be excluded from the prism, and, therefore, the slit, lens, and prism are enclosed in a tube, or, if the prism be too large, the latter is fitted with a separate cover. Further, as the spectrum on emerging from the prism is but little longer than the width of the slit, and only becomes of same length as the distance from the prism increases, a telescope is introduced in order that the eye, though at but a small distance from the prism, may see the spectrum of a sufficiently large size. Every spectroscope, then, consists of an adjustable slit, a lens, a prism, and a telescope. I may add, that its value is greatly increased by using, not one, but several prisms. And now we come to the

APPLICATION OF THE SPECTROSCOPE.

What is the use of all this machinery, and what the practical result of these weird discoveries? In dealing with these questions I shall consider the spectroscope first in its application to terrestrial bodies, and secondly to celestial.

If, by means of an electric lamp, I heat a piece of carbon to an intense heat, the spectrum that it casts will be quite continuous from end to end—that is, there will be no

gaps or black or bright lines mixed in with the colors, such as we saw in the solar spectrum. All other solid or liquid bodies give a similar spectrum, so that we may consider it a rule that solid or liquid bodies, when heated to a vivid incandescence, give a continuous spectrum. Very different spectra are obtained when the source of light is not an incandescent solid or liquid body, but a vapor or gas in a glowing state. Instead of a continuous succession of colors, the spectrum then exhibits a series of distinct bright-colored bands, separated one from another by dark spaces.

Fig. 6.—Spectrum produced by a Prism.

But the spectrum marks many other distinctions besides these. Different substances give different spectra, or arrangement of colors and dark lines, and so, by the appearance of the spectrum, we can tell the presence of the different substances which are burning. For instance, the spectrum of common salt—a substance found in almost everything—is a brilliant yellow line upon an almost black background. Nitrogen gives all the colors, but with about one hundred black lines, which have been carefully mapped out. Hydrogen shows three bands—violet, blue, and red—upon a black background, with some very faint green and orange, and so on through all the elements.

Besides this, spectrum analysis, by telling us many secrets of the physical condition of gases and vapors, has made almost a new science of chemistry. By this method of research we can determine the most minute quantities of substances. Take the smallest particle of salt you can possibly see even with an ordinary magnifying glass; let it dissolve in the oil of an ordinary kerosene lamp, and, if we can make a spectrum of the light of that lamp, that spectrum will tell us of the presence of that microscopic particle of salt! Lithium is an element whose existence was not known, except in small quantities and in only three or four substances, till the spectroscope revealed it. The six-millionth part of a grain of this can be detected, and this substance—so long almost unknown to alchemists and chemists—is now known, thanks to the spectroscope, to exist almost everywhere, in many solids, in ocean-water, and in meteoric stones.

In 1860, Bunsen happened to be examining with a spectroscope the result of one of his analyses of the waters of a German spring, and he saw some new lines. Having faith in his instrument, he evaporated no less than forty-four tons of the water of this spring, and out of these forty-four tons he got about two hundred grains of what turned out to be a new metal, which he called cæsium. In a somewhat similar way the metal thalluim was discovered, now extensively used in the manufacture of fireworks. I may mention here that the French Academy tried hard to rob Mr. Crookes, F.R.S., of the honor of this discovery, even as they had treated Mr. Adams, the young Cambridge student, *anent* his discovery of Neptune.

Here is another useful and beautiful application of the spectroscope. In the Bessemer process, five tons of cast-iron are turned into cast-steel in twenty minutes. Steel is merely iron deprived of its carbon; so the process simply consists of getting rid of the carbon. This process is such a delicate one that a mistake of ten seconds either

Fig. 7.—Neutralizing of Dispersion.

way spoils the whole five tons which are being operated upon. The heat from the incandescent iron is so intense, that the vapor of the different substances mixed with it casts a spectrum. At first the spectrum of carbon is quite visible; but at the right moment that spectrum disappears, and the work is completed without any danger of over or under-doing.

Dr. Bence Jones wished to discover how rapidly lithium, when admitted into the body, would become absorbed into every part. It would be rather inconvenient to resolve a human being into vapor for such a purpose, but he administered some lithium to guinea-pigs, burned the ashes of their different parts, and examined the spectra with satisfactory results.

Now we come to the application of spectrum analysis to the heavenly bodies. We must first define another law of the spectrum. It is as follows: Gases and vapors, when relatively cool, absorb those rays which they themselves emit when incandescent. For instance, if we have a continuous spectrum falling on a screen, and interpose a piece of smoked glass, you will find that the light will be cut off and the spectrum deadened throughout its entire length. This smoked glass, then, has the faculty of keeping back the differently-colored rays of light—red, yellow, blue, and so on—and is an instance of *general* absorption. Now remove the smoked glass, and interpose a piece of red glass; it cuts off nearly all the light except the red; or, introduce a piece of blue glass, and it cuts off all except the blue. These latter are instances of *selective* absorption. The practical application of this is that chemists and astronomers can detect different substances by their absorption. For instance, by this power of absorption, a blood-spot so small that it contains only one-thousandth part of a grain, is perfectly easy of detection, and may be recognized even after a period of fifty years.

Now we turn our spectroscope to the sun, and apply this law. We quickly find that his atmosphere contains vapors of sodium, iron, calcium, magnesium, lead, gold, and other metals, and probably copper and zinc. There is, then, an absolute similarity of substance between the sun and the earth, and this suggests a likeness in all the orbs that compose the system. If the sun had displayed a chemical composition wholly unlike ours, we should have had little reason to suppose that any of the planets had a structure similar to our earth; but, having proved an identity between the elements of the sun and the earth, we may fairly infer a similarity in every dependent planet of the system. On the earth, iron and gold are applied by an intellectual being to a thousand useful purposes, and contribute to a refined and exalted civilization; and are we not led to ask, what other purposes can they be meant ultimately to serve in Venus or in Jupiter?

When the sun is totally eclipsed, it has long been known that brilliant red protuberances bead the black edge of the moon, and that beyond her disk, for enormous distances, a brilliant silvery haze is ever present. It was to discover the true nature of these phenomena that expeditions from almost every civilized people have been equipped to observe recent eclipses. The results are of great importance. The spectroscope shows the solar prominences to be up-rushing masses of *hydrogen* in flames. For an average depth of from five thousand to seven thousand miles from the sun's edge it envelops his globe as a seething mass, called the *sierra*, while the prominences proper are gigantic local accumulations of the same matter impelled outward in volumes of erupted flame. The spectroscope shows the entire rolling, twisting, seething mass of flaming gas as perfectly as the flames which issue from the furnace of a smelting-house can be seen at night.

On September 7, 1871, Professor Young observed a massive cloud of hydrogen on the sun's edge. It was one hundred thousand miles long, and its upper surface fifty thousand miles from the sun's surface. It was supported on pillars of blazing hydrogen. Some business took him away from the observation for half an hour. On his return, he saw that "the whole thing had been literally blown to shreds by some inconceivable uprush from beneath. . . . In place of the quiet cloud," the whole region "was filled with flying *débris*," some

of which had already reached one hundred thousand miles of distance; in ten minutes the uppermost area was two hundred and ten thousand miles from the sun.

We now turn our instrument toward the moon. Since the planets and their satellites do not emit any light of their own, but shine only by the reflected light of the sun (with the possible exception of Jupiter, Uranus, and Neptune), their spectra are the same as the solar spectrum, and any differences that may be perceived can arise only from the changes the sunlight may undergo by reflection from the surfaces of these bodies, or by its passage through their atmospheres. The spectrum of the moon shows no special absorption lines, so we must believe that our satellite has no atmosphere. The spectra of Venus, Mars, Jupiter, and Saturn afford evidence of an atmosphere containing aqueous vapor, and Jupiter exhibits some signs of elements of which we know nothing on earth, and it is possible also that the atmosphere of Saturn may contain gases or vapors which do not exist in that of our earth. The spectra of Uranus and Neptune contains some strange lines concerning which nothing very definite is as yet determined.

Although the fixed stars are immensely more remote and less conspicuous in brightness than the moon and the planets, yet, from the fact of their being original sources of light, they furnish us with fuller indications of their nature. The deepest thinkers in all ages have joined with the little child in the sentiment:

> "Twinkle, twinkle, little star,
> How I wonder who you are."

The telescope has been appealed to, but in vain; for, in the largest instruments, the stars never appear more than as brilliant points. But our "light-sifter" has won great triumphs of knowledge in this field of reasearch. The spectra of many of the fixed stars have been examined, and all of them show substances common to the earth and sun, as sodium, magnesium, hydrogen, calcium, iron, antimony, and mercury. It follows, then, that they are veritable suns, and a general likeness in structure points to an universal likeness of purpose. All analogy suggests to our sun and these others a similar utilization.

It was suspected that the whole heaven of stars was drifting in many directions. It was found that five of the seven bright stars of the Great Bear, sometimes called the Dipper, or the Plow, were drifting in a common direction, and with uniform velocity. The spectroscope was called in to confirm or upset these surmises. Let me briefly indicate the principle which makes the spectroscope available in this stupendous experiment. It is already seen that the pitch of a musical note depends on the number of vibrations which the ear receives in a given time; and rises in proportion as the number of vibrations reaching the ear in a second increases; falling in proportion as they are fewer. Now, the greater the area over which waves of sound proceed, the more they expand; and, therefore, the fewer enter the ear. So the pitch of a note will depend partly on the distance from which the sound has come. Thus, the pitch of a locomotive-whistle a mile away is comparatively low; but, as it rapidly advances toward us, the pitch rises until it reaches its maximum in passing us, and then falls again. The heightening of the pitch, then, depends upon the crowding together of the sound-waves by the advance of the source from which the waves proceed. It is thus with light-waves. The violet-light at one end of the spectrum produces the greatest number of vibrations in a given time; the red the least. Let the body from which such light proceeds rapidly approach us, and of necessity the light vibrations will be driven together—shortened—but the shortest and most rapid vibrations belong to the violet end; and, therefore, if a body with, say burning sodium or hydrogen in it, be approaching us, its lines will be bent toward the violet end of the spectrum. If it be receding from us, the vibrations will widen out—be fewer, less rapid, and thus be bent toward the red. Huggins, a most eminent spectroscopist, applied this principle first to Sirius, the brightest star in our heavens. He made the hydrogen line of its spectrum the test, and found that it suffered displacement toward the red end of the

spectrum; therefore it is receding from us, and the rate of recession was proved to be twenty-six miles in a second. The same test was applied with perfect success to the five stars in the Great Bear.

This wonderful instrument, still doubtless only in the infancy of its use, has been applied to nebulæ, to comets, and even to meteors and shooting-stars, and is rapidly demonstrating identity of physical structure throughout the universe — unity of force, unity of aim, and the incessant and sublime activity of creation.

GEORGE C. JONES, A.M.

THE ART OF CONVERSING.

THE art of conversing is a truly difficult one, as it consists not in fluency, or in learning, or yet in both combined. Conversation should have dignity without the least pomposity; information, without any pedantry; ease, with no alloy of vulgarity; deliberation, without slowness; continuity, without monopoly; difference, without assertion; contradiction, without a shadow of dogmatism; beauty of language, without studied culling of flowers; conciseness, without arid sententiousness; wit, without gall; humor, without immodest equivoque; and perfect suitableness as to time, place, persons, and subjects.

Abbé Corria has left us a superior example that many might profit by. He spoke things rather than words; much, but with due intervals for others; with point, but never with unjust severity; succinctly, but not with aphoristic precision; of himself, but never with egotism; was narrative, yet without tediousness; anecdotal, but with quickness and without episodes; was humorous, yet leaving to others the enjoyment of the laugh, and still without any affected sobriety in himself. And should some of the company less refined than himself prolong the gaiety occasioned by his anecdote beyond the sympathy of others, he knew how to cut it short at the exact moment, and yet without offence, and even by continuing the enjoyment, but in some other channel.

Conversation is somewhat aided by the genius of the language used. French colloquial, as well as epistolary talent, is proverbial; and though these lively people are accused of frivolity, we think it is with little justice. Contrasting them with other nations it has been said, *que les autres nations ne savent que disserter et dissenter*—other nations only know how to dissert and to dissent.

In this valuable art the English exceed, perhaps, all others, in good breeding, in gentleness, and a subdued manner; but are deficient in fluency, grace, and joyousness. The Americans are voluble, argumentative, discursive, and rapid beyond all known talkers; but they are boisterous, inelegant, monopolizing, and without rule. The *genus* is here pointed at; numerous exceptions, of course, exist. In Pompius we find an example of his class. He is a man of observation, of numerous and varied pursuits, of some irregular reading, very industrious, extremely practical, and a true son of America; converting all things into gold, which he spends with wonderful extravagance, little taste, and less discrimination. He converses, of course, *de omnibus;* is fluent, uses good language, not uniformly well pronounced and grammatical; speaks in a stream; often harangues; is very loud; leaves few intervals wherein others may differ or assent; uses numerous expletives and occasional exclamations; has a good deal of humor, but is himself quite too conscious of it; has many just opinions, but is too dogmatical; is jocose, but not always refined; argues his own side, but never responsively to his antagonists; and makes it a point to come off the victor, though more than twice vanquished!

Americaness is sprightly, has much ethereal, but frail beauty; is not deficient in the polite information of fashionable life; is self-possessed, and talks with remarkable fluency. But her sister, Simperina, is heard much beyond the coterie in which she happens to be; is too familiar with the perishable gossip of the day—reluctant to pass to other

themes; blends a little too much laughter with her words; whispers occasionally to her female companions, and with some significant and tantalizing looks. She is not happy in her by-play when others have the parole; and when she has it, it does not give to her eye and manner that intellectual and eloquent expression which charms attention, and is so often found in the more intelligent and polished women of the old country.

In fine, conversation is the most faithful representative of a nation's progress in civilization and refinement, and can scarcely be taught by books, but is the result rather of much association with good society, and of no little reading in many departments of human knowledge. MASSEUR DEMERESQUE.

HERMANN LUDWIG HELMHOLTZ,

THE EMINENT GERMAN PHYSIOLOGIST.

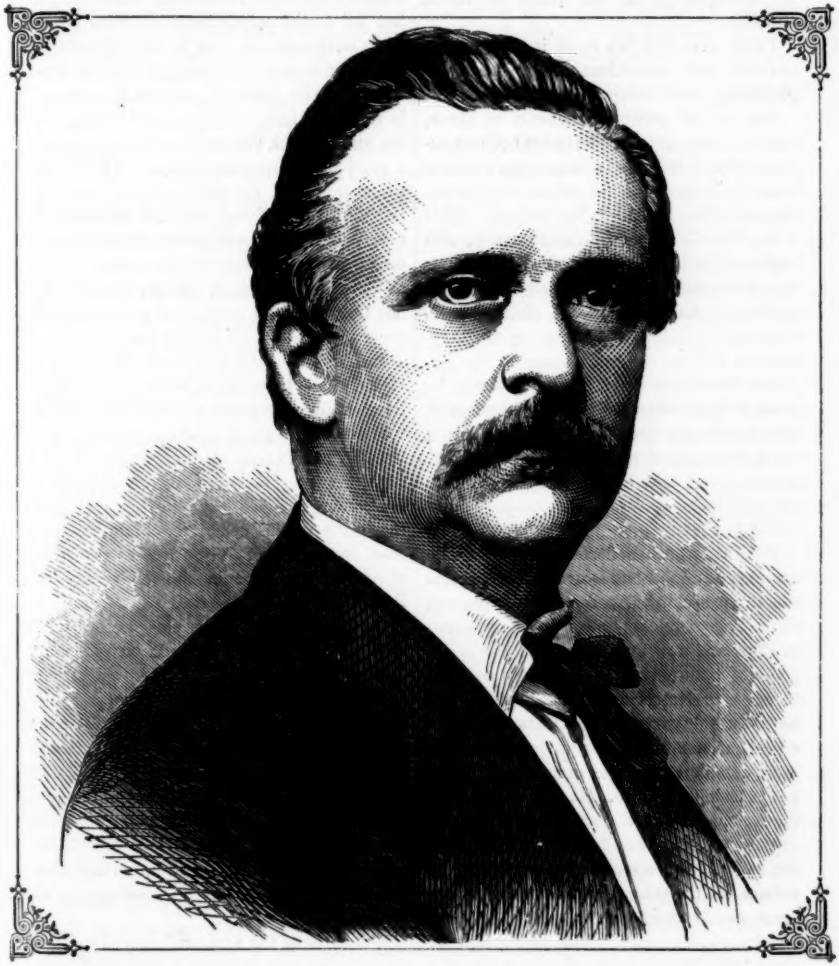
THE portrait before us is an admirable specimen of constitutional vitality and vigor. A person so organized has an abundance of warm blood, zeal, and ardor, and that active energy which amounts to enthusiasm. The head is broad from ear to ear, indicating much courage, force, earnestness, and positiveness; and it is long from the ear forward; in other words, massive in the forehead, showing talent, especially for facts and things. The perceptive organs, being paramount, give the tendency to observation, to gain a knowledge of the external world, and also impress a desire for practical science.

He is a natural fact-gatherer, observing all the phenomena and recognizing the relations of facts to things, and of all material data to ideas. We do not think him to be constitutionally a speculator; he does not dream out a theory and afterward look for facts to supplement it, but builds up a theory as a bird builds a nest, straw by straw. He has remarkable constructive talent, hence he should be ingenious in mechanics and in studying out all complications and combinations. His language qualifies him to express himself with ease and fluency, and he is well adapted to do the literary work that belongs to his pursuit. He can tell his thoughts, explain his ideas, and describe whatever he knows. He should be known for power to gather knowledge, but especially for power to remember, combine, and classify.

He has considerable imagination, hence the hope of something higher and better; and always keeps himself on the alert for new truth and advanced ideas. He appears to have large Acquisitiveness, and is doubtless inclined to study economy and appreciate profit and loss in all its phases. As an inventor, he would have in view the saving of money, of strength, labor and health, and whatever is valuable. His top-head is high, but not very broad. We infer from the portrait large Firmness, giving perseverance; large Hope, giving a tendency to anticipate, look upward and forward; Veneration enough to give respect for whatever is venerable. In business, in literature, everywhere, such an organization will be practical, thorough, earnest, ever ready to learn or to communicate knowledge. He is a live man, dealing with living subjects, and in any position would be an earnest factor in all that was interesting or profitable to himself and others. It is such men as he who push the world ahead; who fill up life with effort, and who generally succeed.

Conspicuous among observers and experimenters in modern physiological science, stands Hermann Ludwig Helmholtz. He was born in Potsdam, Prussia, on the 31st of

August, 1821; was the son of an instructor at the gymnasium of that city, and received his early mental training under the direction of his father; entering the gymnasium at an early age, and completing his course of study therein before he had reached his seventeenth year. Then he was entered at the Royal Military School of Berlin, where he studied medicine.



In 1843 he was appointed assistant surgeon in connection with the Charity Hospital of that city, and afterward given a military position at Potsdam. Here, in 1847, he prepared his first volume for publication, on "The Conservation of Force." Its appearance attracted considerable attention, and gave him high rank as a thinker and investigator in natural science.

In 1848 he was made assistant professor in the Anatomical Museum of Berlin, which was at this time under the direction of the renowned anatomist, Johannes Müller. The

associations here were of no small advantage to Helmholtz, and he studied earnestly while exercising the vocation of an instructor. The following year he was appointed to the chair of physiology at the University of Königsberg, in the place of Ernst Brückes.

From that time his most important discoveries and inventions which relate to physiology and therapeutics date.

One of the most noteworthy of these, made in 1851, was for the benefit of numerous sufferers from eye disease, and consists of an eye mirror, for the examination of the retina of the eye in living beings. This alone, Von Graefe wrote, should crown, with imperishable laurels, the head of the inventor. It is said that he was led to this invention by reflecting on the circumstance, that while it is impossible during the daytime to see clearly into a room on the opposite side of the street, it can, however, be done at night when the room is illuminated, and also during the day by throwing into it sunlight reflected by a mirror or sun-glass. He describes this invention in the volume entitled "On the Opthalmoscope," published in 1851.

Helmholtz furnished other important suggestions and methods of treatment in relation to the eye, in his work entitled "Manual of the Physiological Optic," which appeared in 1856, and now forms a part of the cyclopedia of natural philosophy, edited by Prof. Karsten, in Rostock. In this work, Helmholtz not only gives us the results of his own investigations, but also a history of optics more complete than was ever presented before in a single treatise. He discusses therein the newly-developed doctrine of sight perception, and furnishes data with reference to the analysis and appreciation of colors. A volume on the transmission of nervous impressions, is another valuable accession to physiological science, which shows that he is not only able, as an experimenter, but also a master in the application of mathematics to physiology.

In 1855 Helmholtz was called to the University of Bonn, as professor of physiology and anatomy. Here he published his first investigations in acoustic physiology, and laid the foundation for the work through which his name has become famous in the science of the world. A treatise on this subject was published in 1862; a second and enlarged edition followed in 1865. He invented a method of analyzing sound, which has led to the acquirement of facts previously unthought of, and to the explanation of the principles governing in musical harmonies. His invention essentially consists in the use of hollow bodies called resonators, the air in which vibrates in the presence of a previously determined sound. Helmholtz discovered that the difference of quality in the tones of different musical instruments resides in the different composition of these tones. He also discovered the acoustic cause of the vowel sounds of human speech, and not only analyzed them, but also produced them artificially with tuning-forks.

Important results have been achieved by Helmholtz in his study of atmospheric vibration; of the movement of electricity in bad conductors; of the motion of light in its refraction in different media. From 1865 to 1871, he was professor of physiology at Heidelburg. Since 1871 he has occupied the place of the celebrated Magnus, who died on the 4th of July, 1870, as professor of physical science in the University of Berlin.

He has been in rather close accord with Prof. Tyndall, of England, on account, doubtless, of a similarity of investigation. In connection with Wiedemann, he prepared an excellent translation, into German, of the works and lectures of that eminent English naturalist. He also has assisted in the translation of Sir William Thompson's and Mr. Tait's "Manual of Theoretical Physiology." This work Helmholtz pronounces one of the most important that has been published on the correlation of natural forces.

He has, from the first, endeavored to popularize science so that the masses shall reap the fruit of all that is true and useful in its progress. With this aim, he has frequently appeared before the public as a lecturer at Königsburg, Bonn, Heidelburg, and Berlin. Among the subjects thus considered, may be specified—The Conservation of Force,

The Nature of Human Perception; Goethe's Treatise on Natural Philosophy; Du Bois Raymond's Investigations on Animal Electricity; The Physiological Effects of Musical Harmony; The Progress in the Theories of Sight; Optical Vision and Painting; Ice and Glaciers. It is Helmholtz's ability and readiness to give to the public at large the results of his own researches that have contributed largely to his fame. Many of his lectures have been published, some finding their way into English publications.

Perhaps the reader will be able to obtain some notion of his manner from the following extract from his oration on Gustave Magnus, which was delivered on the 6th of July, 1871, before the Berlin Academy of Science: "If we look over the series of sciences, with reference to the mode in which their conclusions are derived, we will notice a general difference between the natural and the mental sciences. The natural sciences are, in most cases, able to carry their inductions to sharply-defined, general laws or rules; while the mental sciences have to deal chiefly with judgments proceeding from psychological perception." After presenting a view of mathematical study, and showing how absolute certainty can be arrived at through that, he proceeds: "Knowledge alone is not the design and object of men on earth. Although science awakens and cultivates the most subtle forces of the human mind, yet he who studies only to know, will not find the true object of his existence in this world. * * * *

"A thorough knowledge of the operation of the natural and mental forces, is all that scientists can attempt to acquire. The student must feel himself rewarded by the pleasure found in hailing new discoveries, new victories of human effort and human thought, over opposing material forces. He can find pleasure in the beauty which a well-arranged department of knowledge exhibits, in the coherence of relation between its different parts, perceiving how one part grows out of, or is developed by, others, and he must find high enjoyment in the consciousness of having contributed to the growing chapter of general information; in thus assisting to manifest the supremacy of man over the forces and material of nature."

In 1870 the French Academy admitted him to its foreign membership, after some discussion, in the course of which a member said: "You will place yourself in the worse light before the world if, for any reason, you refuse to admit Helmholtz, the foremost and greatest naturalist of this age."

HORSEBACK RIDING VS. CONSUMPTION.

A FEW months ago our attention was called to the death of Mr. Francis P. Blair, Sr., at the age of ninety years or more, and we were reminded of the fact that when but twenty years old, he was pronounced by his physician to be an incurable consumptive. All medicaments known to the faculty had been tried, and proved of no virtue. Study, overwork, or inherited consumptive tendencies, had given him a cough, which was causing him rapidly to waste away. He was finally advised to try horseback exercise, and concluded to put the advice in practice. When he began he had to be lifted to his horse, as he has had to be for the last ten years, but he kept on riding then, as he kept on until near his death. All these years those who passed by his residence at Silver Springs, could every morning see two horses saddled near the old man's door. One was for the young woman, now come to be more than three-score years and ten, whose runaway accident, so many years ago, resulted in the purchase of Silver Spring farm. The other was for Mr. Blair himself. An immense stone, ascended by easy steps, constituted the mounting block, from which faithful body-servants assisted the aged feet to the scarcely less aged stirrups. The old gentleman and lady started off with as much pleasure, though scarcely with the same vigor as they did half a century ago. They always rode for two hours at a comfortable, health-giving, old-folks' gait. Moralists and physicists can find a good deal for reflection, and draw a very wholesome lesson for prudent living, from the course of life of the Blair family at Silver Springs, and one is —as certainly demonstrated in Mr. Blair's case—that there is more health in horseback rides than in all drugs.

Department of Literature, Science, Education.

True philosophy is a revelation of the Divine will manifested in creation; it harmonizes with all truth, and can not with impunity be neglected.

HOW TO TEACH;

OR,

PHRENOLOGY IN THE SCHOOL-ROOM AND THE FAMILY.

QUAKER MODE OF TRAINING.

IF persons doubt the influence of harsh or mild treatment on the future character of the child, we would refer them to the Quaker mode of training, and to its results on the character of their children. They govern their own tempers better than most others; they are firm, but kind, in the treatment of their children, and the result is, they grow up to manhood with quiet, unruffled dispositions, quite capable of self-control; and though they are disposed to debate and contend for that which they regard as the truth, they do not wrangle and fight as do others. Whereas, on the contrary, a man who has been trained in the ordinary way becomes angry and intemperate in his words and actions, and this excites no special remark and awakens no surprise. But let the Quaker become wrathy and rough, like other men, and it would be such a strange fact that it would be noticed with amazement by everybody.

ILLUSTRATIVE FACTS.

To illustrate this point, we would invite attention to a few facts and inferences. Many years ago I examined, in Massachusetts, the head of a little girl of four, and found excessive Combativeness and Destructiveness. On referring to the heads of the father, mother, and a younger child, I found that none of them had the organs in more than a medium degree. This excited my surprise, that none of the family except the little girl had the organ large. I suggested to the parents that the child had been much irritated in her training to induce thus early so large a development of these organs.

THE WAY IT HAPPENED.

The mother replied: "That is true, and I will explain the reason. I had so often seen, while teaching school, such a laxity of parental discipline, that I determined, if I ever had children, I would begin with them in season and make them go straight. Accordingly, this girl being my first child, I began early to make her toe the mark, and I used to train and whip her for every little offence or neglect. She has become very fretful, peevish, and violent in temper, so that now whipping only makes her worse. A few days ago I lost my temper and gave her a severe whipping, and the moment I got through with her she seized the fire-tongs, and with a severe blow broke the back of her pet kitten that was sitting by the fire. As soon as her anger had subsided, she mourned piteously for the death of her pet. She is a very bad child when she is angry, and I really do not know what I shall do with her. But I have taken a different course with my other one, and she is easily

managed, though her natural disposition is no more amiable than that of the older one was at first."

A WISE TEACHER—A BOY SAVED.

Another instance was related to me by a teacher in the State of Connecticut. A boy fifteen years old had been flogged and harshly treated at home and at school until he had lost his self-respect, and became utterly reckless of his character. So bad, indeed, was he, that the trustees in his native district had caused his expulsion from the public school. His father, almost in despair, requested a teacher in the neighboring district, who was known for his great success in managing the worst of boys, to try his son. On entering the school, the teacher lent him an interesting book, telling him he might read it the first day, and not commence to study until he had become acquainted with the new place. That night he told the boy he thought him capable of becoming one of the best scholars in the school, and that if he would try to excel, he should have every opportunity afforded him, which would enable him to disappoint the expectations of everybody. The poor outcast opened his eyes with astonishment, amazed that any one should speak kindly to and be interested in him. For several weeks he seemed to forget his wayward habits, and devoted his mind to study with remarkable success, to the surprise of all who knew his history. One day he became very angry because the teacher would not aid him, at the moment, in solving a problem. He laid down his books and sat nursing his wrath, and when the teacher found leisure and offered to aid him, he tartly replied, "I do not wish it." When the school was closed the boy was requested to remain, doubtless expecting a flogging, as in former times; but what was his astonishment when the teacher sat down by his side and said, "Thomas, I thought you were willing, and meant to be a good boy, and I had given you a good name among all your acquaintances, which seemed to give them great joy. Must I now go and tell them that all my hopes for you are crushed, and that all my kindness toward, and efforts to help you, are lost?" Thomas wept under this appeal, for he had expected the whip or expulsion from school; and from that hour his reformation was confirmed. After he had found that one, at least, "cared for his soul," he became an excellent scholar, and was known for exemplary conduct, and a more worthy man than he now is can not be found in that neighborhood. He regards his teacher as his saviour, and dates the turning point of his life and character to that hour with the teacher at the close of the school on that eventful day.

Now, suppose the teacher had allowed his anger to be provoked by the boy's sullen insolence, and he had scolded and whipped him, as others had done, instead of arousing the boy's benevolence and friendship, and awakening his self-respect and regard for the good opinion of others, he would have gone from that school but an outcast and an Ishmael.

TRUE POLICY, SOUND PHILOSOPHY.

"A soft answer turneth away wrath, but grievous words stir up strife," is a proverb full of truth and sound philosophy, and embodies the true theory of training Combativeness and Destructiveness. Never allow yourself to become angry with a person whose anger you would control. No person can govern others who can not govern himself, because his self-control is the only means of obtaining a lasting control over others. An irritable child may have inherited this quality from an equally irritable mother, and is to be

pitied more than blamed for this state of mind. How ill-adapted is such a mother, who will not control her anger, to manage such a child! Her words are to him like fire on a blister. With such a case the treatment should be of a most kind and gentle character; let soothing tones and amiable language be addressed to it, and this passion will subside; at least it will not be cultivated and increased in strength and activity. Then a calm and efficient rebuke may be made to its moral, intellectual, and social nature which would fortify these superior elements against the future inroads of the rebellious propensities, so that the next mental mutiny may be quelled by the proper action of the child's faculties without parental assistance.

HABIT OF SELF-CONTROL.

Thus, by awakening the restraining faculties, we awaken in the child the power, and establish the habit of self-control. We do not mean that one wise and judicious treatment of a child will produce its reformation. It may be necessary to give "line upon line, and precept upon precept." Awkward habits are not reformed in a day. When the rustic enters society and tries to take on all its customs, which, to him, are strange and mysterious, he does not become in a year a polished gentleman, though he is all the time working toward it; so the child, having inherited a fiery and quarrelsome spirit might not, even in a Quaker family, in a year cease to show traces of his native pugnacity. The parent and the teacher may work with faith and hope till ultimately they will reap the harvest. If all the reform which seems desirable does not soon appear, or we seem to secure only half the success we seek and hope for, remember that our efforts modify the character and make it less vicious and turbulent than it might have been. When a heavy train is descending a steep grade, the brakemen, with their best efforts, may be able only to retard the speed and keep it at a safe point. A driver might desire to stop a fiery horse, but his strength is only sufficient to keep the steed in the road, and prevent him from running away with the carriage and its precious freight. Shall he not do his best because he may not be able to do all he would? So, teachers and mothers, we beseech you, keep hold of the headstrong boy or girl, and check their wrong tendency if you can not at once stop or reverse it.

TWO MODES OF MANAGING THE ANGRY.

There are two excellent modes of managing children when excited by anger. When the child is young, how easy it is to call out something interesting to his other faculties! When older, how very easy it is to relate a story, made up for the occasion, if need be, in which the child's anger may be shown up in such a light as to make it appear improper or even ridiculous. We have seen a child change in one minute from rage to laughter under the ingenious treatment of an amiable sister or judicious mother. Another method is to cool the rage of anger by pouring cold water upon the refractory child. In some desperate cases this has been found to work like a charm. A child sometimes gets angry and throws itself upon the floor, and screams, and kicks, and almost goes into a fit of apoplexy; then a stream of cold water poured upon it, thoroughly drenching it, will have a wonderful effect. This must be done in all kindness, calmness, and candor, as you would administer medicine; and while it does not require, on the part of the parent, severity, as it would to conquer with the whip, it leaves no ill effect on the mind of the subject. When the child is thus restored to its balance, it is easy to reason

with it through its intellect, or reprove it through the moral feelings, or awaken the affection, the sympathy, or the dignity of the delinquent in reprehension of its past conduct.

"NO TIME TO TRY NEW METHODS."

Are we told that mothers with large families and much work to do can not take the time to try modern notions and scientific methods of training their children? They must speak sharply and be obeyed at once, or by an impending blow make the delinquent desist from wrong doing or hasten to fulfil duty. Not a few believe in this method, for many practice it; but children so trained will wrangle with each other, and be always in some broil, and they will seem to need ten times as much effort on the part of the mother to keep them regulated as would be the case under wiser and calmer administration. We have known such a family to lose the mother, and in process of time a step-mother would be installed, who fortunately was wise, well-informed, self-regulated, and imbued with the true spirit of strict, but beneficent government; and she soon brought order out of chaos. Like the Connecticut teacher, she astonished the children with a new spirit and new methods, and in less than a year, kindness, courtesy, and good manners prevailed; and some of the relatives of the departed mother fancied there must be some secret severity which had cowed and overawed the children. The children knew better, and evinced their confidence and love by every evidence of gratitude and sincerity, and many years of the most tender and intimate companionship.

As like produces like in nature, so rough and hard treatment of child or horse will arouse corresponding dispositions; and gentle firmness, guided by justice, wisdom, and love, will convert a fractious horse or a petulant and headstrong child to obedience and a modified disposition. Some have unfortunate dispositions, but by kindness and wisdom, even these can be made tolerable, and that is the easiest possible way to get along with them. The harder a mother has to work, and the more children she has to manage, the more important it is to her and her children that she should adopt the wisest and best methods of government. Some have a genius at government and need no aid or advice. Those who do not take easily and naturally to government, may and ought to profit by the suggestions of science.

It may, perhaps, be of service to some parent or teacher to read the following extract from a written description of character, made by me, September, 1876, in the daily course of business, for a boy who was brought to our office by a lady, not his mother, who felt an interest in him, and believed our advice would aid his parents in guiding, and perhaps saving, their capable and somewhat wayward son. Much of the advice is in the direct line of the subject matter of the last few pages; the remainder will find subjects enough for its application.

EXTRACT FROM AN EXAMINATION.

"This boy has a large head for one of his size and age, and it is developed in three or four directions pretty strongly. He has, in the first place, an excitable temperament or constitution, and care should be taken not to rasp and exasperate him. He should be treated with evenness and smoothness, and not insulted, or worried, or fretted. He has so much sensitiveness that we would have him avoid in his food everything that produces irritation, like pepper, mustard, and vinegar, and it would be better for him not to eat sugar, because

that produces heat and excitement. He should not drink coffee, because that stimulates the brain and disturbs the action of the heart; he should eat plain diet, oatmeal, Graham bread, beef, fish, milk, fruit, and vegetables. He has rather a strong appetite, and might form habits upon it that would be damaging to him and his health. He has large Destructiveness, and that gives him a high temper, and a great deal of what is called grit; and when he gets angry, he does not care much for consequences, and he is inclined to resist everything in the way of severity or opposition. If we had him to manage we would be careful not to get him angry, and especially would we avoid disciplining him by word of censure or by blows while he was angry or excited, but would wait until he got over it, and then if the punishment were calmly administered it might be severe without producing bad effects on him. But the better way is to talk to his sense of honor, character, and reputation, to his sentiment of justice, to his friendship and sympathy, rather than to his selfishness, or his anger, by harsh words or rough treatment. He has Secretiveness rather largely developed, which gives him a desire to conceal that which he thinks it will not be well for him to express, and his Cautiousness is so large that he will sometimes evade the truth through fear of the consequences. Then his love of praise is very strong, and he sometimes will find himself in a position where he will conceal facts to avoid disgrace, or blame, or ridicule. Children often feel sensitive when blamed about subjects which involve disgrace or ridicule, and there is no appeal made to their sense of justice. The thing is not shown to be wrong in itself, only absurd, ridiculous, or out of character, so the child is reproached, instead of being instructed as to the right and wrong; whereas, if the censure were made through Conscientiousness, if the reproach came because the act was wrong in itself instead of being inconvenient to us, and ridiculous and disgraceful to him, it would have a good effect instead of a bad one. If we laugh at the child, and tell him how absurd and ridiculous his conduct has been, and set everybody laughing at him, the result is, he will resolve not to let it be known the next time. Perhaps he does not resolve not to do it, but not be caught at it. If the address were made to his conscience—if the thing done were shown to be wrong in itself—then he would have something in him to reprove him when the proposition or suggestion to do wrong came up the next time.

"This boy can be made self-regulating, but he must be led and not driven; must be treated with courtesy and kindness, and not be reproved in the presence of others; should not be punished until he has had time to think the matter over, and get over the excitement, and not until the parent has ceased to be angry. Sometimes punishment in the way of whipping is not so useful as would be the quiet denial to the child of some favorite pastime or pleasure. If he were told on Monday that, because of some wrong-doing, he will be deprived of the privilege of going out Saturday, he would have time to get sorry before Saturday, and the whole of Saturday to repent; and if he receives nothing but kindness during the day, and is told that the parents are sorry he is not able to have a good time on his leisure day, he will make up his mind the way of the transgressor is hard, and that the next time he will behave himself; and one such treatment as that will last a child a life-time, at least in memory, and perhaps become a

sample to treat his own children by, thirty years hence. A hard threshing then and there might satisfy parental indignation, and seem to satisfy justice, when, probably, the whipping would only make him reckless, and perhaps more disposed to do wrong the next time.

"Here we find indicated very strong affection, and it can be appealed to, especially by a mother; and here is strong Caution, and its monitions may be made to work in the right direction. Here is a strong love of praise, and it ought to be harnessed to the car of progress, at the right end of it, so that it will pull in the right direction. He has not enough Self-esteem; not quite enough of manly honor about him. He should be taught to respect himself, and that certain things are disgraceful and unmanly; not that they are merely ridiculous, subject to the world's criticism.

"He has Benevolence enough to sympathize with those who come in contact with him, and especially those who are in trouble. If he found that his conduct worried and made his mother sad, he might be induced on that account to amend his course.

"He has a talent for making money, and can work successfully in the direction of trade and commerce. It might be better for him to go into a store than into the ruder forms of labor, because in a store he would learn to suppress some of his feelings and curb his temper, as he might not if he were master of a provoking team. He will have such a sense of the value of property, such a desire to please others and to be popular; will have such a tendency to be friendly and make everybody think well of him, that he will make a good salesman. He has driving energy enough to run a locomotive or a team of mules, but they would not be a means of grace to him. His intellect indicates practical talent, quickness of observation, memory, faculty for figures and for music, and a good memory for details and particulars. His Language is fairly developed. He is more sociable in his spirit than he is free in expression.

"If he can be well-educated, he would do well as a physician; or, if he can be educated commercially, he will do well in business. He might succeed well as a mechanic, especially in something like dentistry; he ought to be where he can use his Destructiveness in surgery or dentistry, or in some energetic occupation. If he were in a store, he would take as many steps as would be necessary. He would run up-stairs after something and be back in a moment. Instead of trying to palm off something that a customer did not quite want, he would say, "I have some up-stairs, I will bring them down." He is industrious, spirited, ambitious, affectionate, thorough, impulsive, practical, and a good reader of character, and if educated, trained, and treated rightly, he will make a good man. But he will always have a little too much ginger in his composition, and ought to associate with those in the future who have not quite enough of that element."

NELSON SIZER.

(To be continued.)

EDUCATIONAL GROWTH IN PENNSYLVANIA.—The increase of education in this State is shown by the following figures, taken from the *Pennsylvania School Journal:*

In 1865 the number of graded schools was 1,743; in 1874 it was 5,586. In 1865 the number of superintendents was 56; in 1874, 86. Monthly salary of male teachers in 1865, $28.13; of female teachers, $12.42; of male teachers in 1874, $42.95; of female teachers, $35.87.

In 1865 the cost of tuition was $2,500,000; in 1874, $4,500,000. The estimated value of schoolhouses in 1865 was about $465,000; in 1874, about $2,000,000.

PORTRAITS AND HISTORY IN COINS.

No. II.

IN all national coinages there is some sameness in the style of portraits, just as the works of a particular engraver can be recognized by an expert, even though his subjects may be infinitely diversified. Therefore, in the three ancient Greek faces I am about to exhibit, your readers will trace that sort of similarity which the Greek school of artists imparted. Yet there are abundant *differences* among them (dissimilarity in uniformity), enabling us to read mental characteristics, and these I will point out.

Fig. 1.

Our first illustration is that of the portrait of Alexander the Great. The coin is an Attic tetradrachm (silver) struck by Lysimachus, King of Thrace, whose name appears on the reverse side of the piece. This prince, whose devotion to the memory of his old general led to this preference on the honorable side of the coin, received Thrace and the neighboring countries as his share in the grand division of the empire left by Alexander. B.C. 306 he first assumed the title and insignia of royalty. The possession of the rich gold and silver mines of Thrace enabled him to accumulate much treasure; and this explains the abundance of his coins in those two metals in all the great numismatic collections of Europe and America. They are generally remarkable for the beauty of their workmanship. The portrait of Alexander the Great as we have it above, and upon very great numbers of others, is marked by the *horns of Ammon*, to denote that he always claimed descent from that deity. His features are dull, heavy, perhaps bloated, evidently taken from a painting made in the latter years of his life. Upon the reverse of this piece is found an image of the goddess Pallas seated to the left. Her large shield stands by her side. In her right hand is the winged image of Victory, an extremely common coin-attribution among the Romans four centuries later. The legend *(Anglicé)* is "Of King Lysimachus." It is pleasant to imagine the greediness with which the old soldiers of Alexander sought for coins having his likeness in enduring metal. And throughout Macedonia, the people, proud of their kinship, absorbed enormous numbers of these tetradrachms. At one discovery, 30,000 of Alexander's coins were found some twenty years since near Sidon, in Syria. (See Thomson's "*Land and Book*.") There is a monogram and a Greek letter S in the field of this coin, as the reader will perceive.

Fig. 2.

Our next specimen is that of Alexander

Balas, King of Syria. He gained the throne B.C. 152, and is one of the few reigning monarchs of that country so near to Palestine whose name is found in the Bible. Jonathan Maccabeus was his warm friend, and gave him what support the straitened circumstances of his nation would justify. Alexander married Cleopatra, daughter of Ptolemy VI. of Egypt. But he gave himself up to a course of sloth and self-indulgence, and in B.C. 146 his father-in-law led an army against him, and drove him from the country. He fled to Arabia for safety, but was treacherously murdered there. His son attained the crown afterward under the title of Antiochus VI., whose coin we give further on.

Upon the obverse, or head, of this coin is a singularly handsome face, the portrait of Alexander Balas. Yet there is wanting the gravity and decision we should look for in a king in the stormy days under notice. Handing him over, however, to better physiognomists than myself, we turn to the other side of the piece and find an eagle, the bird of the Macedonian Alexander, and of Jove, to the left. The inscription (*Anglice*) is "Of Alexander the King." The monogram and symbol are those of the city of Tyre, where it was coined. The date (by the Seleucidan era) is found in the three Greek letters equal to 163. Behind the head of the eagle is a palm branch. Under his feet is a rudder, suggesting the maritime fame of old Tyre, so renowned some centuries before.

And here is a most elegant coin, silver, like the other two, representing Antiochus VI., King of Syria, son of the preceding. Like the others, it is an Attic talent or tetradrachm, struck, probably, at Antioch, in the highest style of the Grecian art. The next year after the treacherous murder of his father in Arabia, B.C. 146, this person was brought forward as a claimant to the crown by Tryphon, who had been an officer of his father. Tryphon succeeded in gaining Antioch and a considerable portion of Syria to the cause of the young prince. Jonathan, High Priest of the Jews, contributed greatly to his success, defeating the troops of his opponent at various places, and the throne might have been secured to the youthful claimant but for the treachery of Tryphon himself, who first inveigled Jonathan into his power and murdered him, and then slaying the young king, took the government to himself.

There is something sad to contemplate, even at this distant period, in the history of the poor lad, a mere puppet in the hands of a strong, ambitious soldier. Looking at those boyish features, surmounted with a beautiful spiked crown, we may imagine the hand of a loving mother disentangling and counting the ringlets of her darling's hair. The profile resembles that of hundreds of boys whom we have seen; for humanity is ever the same.

Fig. 3.

Fig. 4.

The reverse side of the coin presents the favorite device of Castor and Pollux, the *dioscuri* or sons of Jupiter, by Leda. They are galloping to the left with spears in rest, their heads surmounted by the peculiar conical caps, always given them, shaped like the half of an eggshell, and a star above the head of each, their cloaks flying behind them in the wind. The attitude is finely sketched. The legends are (*Anglicé*) "Of King Antiochus, Epiphanes, Dionysius."

The letters "Try" represent Tryphon, who adjoined his name to that of his young ward; the numerals represent the year 169 of the Seleucidan era.

As every emblem and device upon a Greek or Roman coin had its plain, simple meaning, let us inquire what was the purpose of thus impressing the group of Castor and Pollux upon this coin. When Tryphon instructed the moneyer at Antioch to impress the *Dioscuri* upon this beautiful tetradrachm, what particular idea did he wish conveyed to the military and the populace who should handle it? Let us imagine a Syrian scribe, into whose hand the new coin had just come, descanting upon it to a group of listeners. He might address them thus:

"This is the face of our new ruler. The radiate crown adjoins him with Apollo, god of the sun. His long, beautiful locks are the glory of his youth. May he live to reign over us until those locks shall turn gray and fall to the earth. These horsemen are the sons of Jove—Optimus, Maximus, the Best and the Greatest. Their mother was Leda, to whom the king of gods overcame in the form of a swan. To these two Anakes (kings) we have dedicated temples and statues. For they protect our ships from tempests; the fires of Jupiter spare our mastheads when the hallowed names of Castor and Pollux are seen painted upon the prow. When the sun goes down over yon blue sea, we see one of these brothers mounting the sky. We know them as Sight and Light. Our children call them Brightness and Joyful. They are the White-horsed phantoms of the day and night. They are the Starry and the Lightful. Favored is he who worships the Dioscuri. The Father will bless those who reverence his Sons. In the constellation of the Twins they glitter in the midnight heavens. They are the Polyduces, the Tyndavides of whom old Homer sang. In taming and managing our Syrian steeds who has success save he who worships Castor? Who has skill in boxing unless his power comes from Pollux? Over their heads we see the gleaming stars; for do they not assist the shipwrecked mariner with their light? Look, oh ye people, upon their gallant forms and be hospitable to the stranger, for these are they who punish the violation of the law of guests."

We have drawn so much upon the imagination of the reader to explain that the coins of the ancient Greeks and Romans were of the character of official bulletins. They were issued, not only to supply the constant demand for currency, but in the absence of newspapers, to communicate national intelligence. When a new prince was installed; when an old prince died; when a child was born; a marriage consummated; a king's journey begun or concluded; a public edifice erected; when a victory was won or a province subdued; when any of the varied incidents important to the interests of ruler or ruled occurred, the same was promptly impressed upon the king's money in the form of a legend, abbreviated according to well-known rules, and within the circle some striking fact was communicated by a *device* derived from the endless and exquisite symbolisms of their mythology. Thus a suit of Greek and Roman coins (totally unlike modern coinage) was "the history of the nation." Each specimen was a chapter, a page, or a paragraph, and when put together by skillful students, we have the whole story!

The *American Association of Numismatists* is formed for the purpose of collecting from all parts of the ancient Greek and Roman dominions the genuine coins in gold, silver, and bronze; in describing them minutely under the strictest lights of numismatic science; and in distributing them to all who would read "the world's debate" by the most reliable lights that history affords. ROBERT MORRIS, LL.D., *Sec'y*.

THE CENSUS OF MASSACHUSETTS FOR 1875, compiled by Mr. Carroll D. Wright, forms a compact volume of 850 or more pages, in which the curiosity-hunter will find many diverting bits of information. From it we learn that the females outnumber the males by 63,146, or only 135 more than their majority in 1865, when the population was 400,000 less than now; and 52,903 of this excess is the surplus of widows above widowers. Of single women and girls over

single men and boys the surplus is less than 9,000. The widows number in all 73,527, or nearly one-fifth of all the women that have ever been married; while the widowers are but 20,624, or less than one-sixteenth of all the once-married men. Of the inhabitants more than sixty years old (128,636) there is an excess of about 11,500 women, or more than one-twelfth of the whole. That is to say, after the age of sixty the chance of life in Massachusetts is as 70 for a woman to 58½ for a man.

Among the "occupations" reported, there are 4,588 filling the position of mother-in-law in the family, and only 1,676 who hold the comparatively powerless part of father-in-law. The whole number of families being 359,000, the proportion of those with a resident mother-in-law is as one in eighty.

Nine persons out of a million and a quarter call themselves "gamblers," three "hermits," nine "loafers," and 298 "gentlemen." The number of authors is 87, of whom 34 are women; of editors, reporters, and journalists 755, of whom 14 are women. There are more than 9,000 teachers who are women, while only 1,600 are men.

MENTAL DEVELOPMENT IN CRIMINALS.

MR. FREDERICK BRIDGES, the well-known English phrenologist and author, in the course of an article on the case of a murderer who was recently executed in England, makes the following remarks on morbid or abnormal organizations. We copy from the Liverpool *Mercury:*

"It is a very common habit to talk glibly of the sane and the insane, as if the terms were universally understood, and as clear as the difference between sunshine and cloud. The terms are clear enough; but in the things signified there is often a great deal of obscurity, otherwise we should not witness, as we sometimes do, the spectacle of learned people giving evidence on different sides when questions involving the meaning of terms are to be decided. And if this is the case amongst those whose studies have led them to familiarity with these subjects, how can we expect that the public at large, from whom juries are selected, and who are necessarily almost strangers to them, should accept without reluctance or gainsaying the conclusion which would embrace in the category of insanity what they have been accustomed to call by another name, whether it be vice, crime, oddity, eccentricity, impulsiveness, intractableness, wilfulness, cruelty, passion, turpitude, or by whatsoever other name the thing before them may seem to them properly designated? It is a difficult thing to decide in many cases whether mental and moral manifestations in question should be referred to the class of voluntary or involuntary phenomena, and it is sure to come to be a difficult thing, if it is not now so. Indeed, everything that raises a serious question in these days is a difficult thing; and it ought to be. The age of easy things is past. Then if we are surrounded by so many difficult things, we should battle with them with so much more alacrity and determination to wrestle the difficulty of moral insanity, and calmly examine the subject with a view to the solution of the difficulty, not turning our backs upon it with a grin of angry ridicule, as if the foundations of society were going to be uprooted and the floodgates of crime let loose, because an unexpected interpretation may be put upon some notorious phase of character.

"Horace told us long ago that if a painter represented a woman with a horse's neck and a fish's tail, the result would be an unnatural monster, at which all the world would laugh; that in the physical world no such anomaly or incongruity could have a real existence. In the moral, however, the representation would be much less monstrous. Whilst a man's intellectual faculties may be cultivated to give him a respectable place in the ranks as a rational being, by his moral faculties he may approach the level of the lowest brute. The picture may also be reversed, and these two extremes may meet through every grada-

tion in the relative excellence of the duplicate powers.

"It is a well-established fact that irregularities of disposition arise from two causes—that is, the transmission of an irregular brain-organization from parent to child, and subsequently the effects of accidental circumstances—as bad example, ill-conducted education, injuries of the head, etc. It is precisely from analogous causes that irregular conditions are occasioned in other organs of the body. They are more or less, in all cases, transmitted in an imperfect and unhealthy state; and the subsequent effects of defective physical education or accident aggravate the predisposition to morbid action which was thus originally established. If a child be born with an irregular organization of brain, he comes into the world to the extent of that irregularity mentally or morally defective; and as by subsequent education that irregularity may be reduced or increased, so his mental and moral malady may be aggravated or relieved.

It is only by training all together—the physical, intellectual, and spiritual elements—that the complete man can be formed.

THE NOSE AS A PRESERVER OF HEALTH.

ONE of the most astonishing things to me is, I think, to see how lightly many people regard that trusty sentinel placed upon the human face—namely, the nose. It has one most important office which deserves particular consideration; being, according to its sensitiveness, an advance-guard of the brain to detect danger from poisonous gases, impure air, etc.

It is simply astonishing the number of people who blunder along through life with this sentinel stupefied and inactive, exposing themselves to all manner of diseases through undetected miasmatic exhalations. Many have a chronically *stuffed* nose through their own carelessness; some, I have no doubt, are born with that member dulled by hereditary disease. Others allow it to become so uneducated that it is useless in detecting danger from impure air. These persons can sit in a church or lecture-room, where the air to a more sensitive person is noxious, and quietly fall asleep—thinking they are only drowsy, when they are being poisoned.

To me, whose nose is a constant trouble, (faithful sentinel that it is, I take back that word "trouble,") it is most astonishing the way people treat this picket-guard of the brain.

Last winter my next neighbor had a young lady boarder whose sleeping-room adjoined the family sitting-room. Four persons besides herself occupied that room most of the time. I should preface that this young lady was the child of consumptive parents, and subject to a scrofulous sore throat. The sitting-room was heated by a large coal-stove, and the kitchen opened into it with its odors of cooking from another coal-stove. Rarely, if ever, was a window opened at all through the cold season. And this over-heated, poisoned air was at night let into the young woman's room to *warm* it—say, rather, to poison it.

At the end of three weeks the poor girl was taken seriously ill with malignant scarlatina. A few days after the eldest child of the family, a girl of twelve, who had slept with her, was attacked, and, for the next two weeks, their lives hung by a thread. How I longed to rush to the rescue of those children—longed to tell the parents that they were poisoning them with foul air.

The room though small had ample means of ventilation from the window and two doors, but these were kept closed, except that connecting with the over-heated sitting-room, and so the poor things struggled along, nearly suffocated, until the doctor himself set open the door into the hall and succeeded in impressing upon the stupid mind of the lady of the house that we *lived* on air. A long illness ensued to both patients, and, had not a good grandmother of the young lady been able to take the care of her during the last weeks of it, she must have died. She was at last taken home in a feeble condition, burdened with a large doctor's bill, as was also the father of the child, too—and all through their culpable ignorance of the laws of health. Perhaps I was wicked, but I could not pity them much; for, in these days of light and knowledge, when health-publications lift up their voice with no uncertain sound, *need* there be such ignorance?

These bedrooms opening into sitting-rooms I do not like. The air is too often contaminated. I think of the poor little infants and children put away to sleep in them—all the fresh, outside air being excluded—and the heated air that has passed through the lungs of the family through the day let in at night for the poor innocents to breathe, and the wonder to me is that one of them survive, and not that so many die annually. How careful ought those obliged to use such rooms be to purify the air of the sitting-room by allowing it to escape and fresh to enter through an opened window or door before allowing any member of the family to breathe it in sleep! But far better would it be for the dormitories to be placed on the other side of the hall; they could then escape the odors of the kitchen and the vitiated air of the sitting-room.

For myself I could not sleep five minutes in a room with the windows and doors closed—in summer or winter; and I look with amazement at those who shut themselves in hot, close rooms to sleep. *Do* the noses of such perform their office? To me it is also a mystery how wives can serenely sit by the side of their "liege lords," while the lovely (?) blue and gilt cuspadore does duty the other side without being nauseated! How pretty young ladies can enjoy the conversation of young men or old whose breath is redolent of tobacco! Much more, how they can allow a lover's lips to touch theirs just after throwing aside his cigar! Mysterious also to me how the housewife can trot in and out of pantry and store-room, and, at last, when she wishes to use fruit stored there, exclaims as she opens the barrel or receptacle—"Why, it is all rotten!" Or, as she cuts a loaf of bread, cry out, in amazement—"It is mouldy!" Why, I wot of a nose that would have detected the *first* indications of rot or mould by the odor. And this same nose is not only valuable to its possessor, but to her family, who are wont to remark that they sleep secure from fear of fire, as "mother's nose would detect the first bit of smoke, and, long before a fire could gain headway, all things would be in *moving* order." Possibly this sense of smell is diseased in mother, for she wakes at the slightest intimation of any unusual odor, or from escaping gas, from the soundest sleep. Once in a while she wishes she could "sleep as do others," but on the whole prefers wide-awake sentinels, whether of armies or individuals.

We like to see a good, generous, clear-cut nose. Napoleon, it is said, selected his officers by their noses, choosing those with large Roman ones, thereby showing his wisdom, for they invariably proved brave. We may not particularly admire a Roman nose on a lady's face, but a good-sized one, with wide-open nostrils, is desirable; for we have observed that small, close nostrils indicate less power to throw off disease through the respiratory organs, and that those having them, die younger than those with large ones.

COUSIN CONSTANCE.

MILK AS AN ABSORBER OF IMPURITY.—"Attention has been called in the daily papers to a practice prevalent in some parts of the country, which appears to illustrate the power possessed by milk of absorbing atmospheric impurities. It is that of placing a saucer of new milk in a larder to preserve meat or game from taint. It is said that not only does it answer that purpose, but

that the milk, after a few hours, becomes so bad that no animal will touch it."—*London Lancet.*

Many people keep milk in wide basins, thus exposing a large surface to the air. This is the practice with farmers who wish to obtain a good proportion of cream from the milk. But in too many cases the "milk-room" is used as a general pantry, and food of all sorts is placed in it, some remaining until it is too stale to be eaten. But the daily supply of fresh milk, according to the paragraph from the *Lancet*, tends to disinfect the atmosphere of the milk-room and to preserve food from spoiling at the cost of purity to the milk. We have known people of delicate taste to complain of the flavor and odor of milk which was presumably fresh, and which they were certain had been kept in a cool place. The property of milk to absorb foulness offers one explanation of the trouble, and a knowledge of it should be disseminated among all producers and users of milk.

FOOD FOR THE SICK.

IT is no easy matter to restrain the sick or some of them, from practical suicide by eating without an appetite, while the task of restraining friends (?) and officious neighbors is but little less than herculean. In the acute forms of disease—fevers and inflammations—the appetite is wisely and mercifully taken away; indicating that the stomach has no gastric juice, and therefore can not digest food, which, if taken, must either be vomited or remain as an irritant, fermenting and rotting, necessarily aggravating the disease, if not producing other and worse forms of sickness.

If the sick could be allowed to follow their inclinations in this respect, controlled by the appetite, which is really the measure of the wants of the body, indicating more food in cold weather and when over-exercised, and less in hot weather and when the body is unnaturally heated, there would be but little trouble; especially if we would but follow the example of sick brutes, all of which, even the hog, knows too much to eat without an appetite. Instead of a desire for food in the acute forms of disease, there is generally a thirst, a desire, and a positive demand for something to cool the body, and not for food to warm the already over-heated system. And, in the first forms of disease, especially, we may trust the indications of the appetite, always exercising reason and judgment to prevent excess. We drink water simply to slake a thirst, and we should take food to repair the waste of the system and regulate the animal heat as indicated by the appetite, never disregarding the known demands of the appetite, or forcing the stomach to receive food when a loss of it or a nausea clamors for abstinence.

But some of the sick take food from principle—though not conscientious in any other respect—supposing that they must do so as a means of gaining strength, or of "keeping the wind out of the stomach," an idea too ridiculous and false to deserve a moment's consideration, too absurd to be entertained in an enlightened age, since the outer air does not reach the stomach, and would do no special harm if admitted. If "wind" is in the stomach, it is evolved by the rotting of the undigested food forced in the stomach—the product of fermentation, as seen in the over-raised dough. To keep the stomach free from "wind," fast when food is loathed; remembering that if the popular idea is correct, that food must be taken to keep the air out of the stomach, constant eating is required, filling it as fast as it is emptied. Again, the sick will gain strength by fasting more rapidly than by eating without a relish and an appetite, since forcing always tends to retard the return of the appetite. Indeed, most of the popular ideas, especially among the ignorant, are "highly preposterous and totally absurd."

It is safe, therefore, in the first or acute forms of disease, to abstain from food. Drink freely of water—at least in the absence of an appetite, and when thirsty—and to use only the simplest kind of food, easy of digestion, while improving; taking the more substantial kinds after being able to labor—all at regular periods.

J. H. HANAFORD, M.D.

PURE AIR.

Time was—a long time before Adam had birth—
When animals could not exist upon earth;
The plants then had plenty of light, heat, and food,
But the air wanted power to vitalize blood.

In the time through which this world's mutations have ranged,
The conditions of air have essentially changed;
And the plants which were once so gigantic in size,
Have been dwarf'd down to what we behold with our eyes.

In our coal-mines, extended such depths underground,
The solidified growths of that period are found;
Light and heat were thus stored, on a provident plan,
For the future convenience and comfort of man.

Air now is a fluid all animals breathe,
From the insect above to the worm underneath;
And the deep-swimming fish, far remote from the sky,
Without air in its water would instantly die.

To draw in a full breath is the work of about
Two seconds of time, and the same to breathe out;
But, before it comes back, the air taken in
Has been changed by its contact with blood through the skin.

The skin I now speak of, adapted to line
The inside of the lungs, is a membrane so fine,
To and fro through its texture it suffers to pass
Components of air, by the learned called gas.

Thus, the air in the course of the moment it dwells
Diffused through the lungs, in the millions of cells,
Loosing oxygen gas, in exchange, one may say,
Receives carbonic acid and takes it away.

When people stay long pent up close in a room,
Replacing what oxygen gas they consume
With carbonic, the blood, which requires to be fed
With oxygen, gets the carbonic instead.

Hence, alas! comes the typhus, our deadliest pest,
That steals on its prey while securely at rest;
Hence, chiefly, consumption, that scourge of the lung,
Which so often the human nest robs of its young.

Prevention of fever, beneficent phrase!
How to do it our statesmen seem still in a haze;
If they do mean to do it, I'll tell them a plan—
Prevent poverty, ignorance, crime, if you can.

There will always be very poor people, we know,
But, don't you have to answer for making them so?
To the rights and the duties of labor give heed;
Promote self-reliance; help only in need;

Let the people themselves understand how it comes
That consumption and fever are rife in their homes;
The invisible air makes them clearly discern,
And how they may breathe it in purity learn.

Abandon the fever-nests known in your town,
Give more space in your street-ways by pulling them down;
Purchase acres outside, build where workmen may dwell,
With their children and wives, in a home, not a hell.

For these homes they'll pay rent; but provide, at the charge
Of the public, a building, capacious and large,
Where men may resort for a converse that's sweet,
And the sexes on festive occasions may meet.

But, of all things, let all men have part of each day
For out-of-door exercise, study, and play;
Supply proper means for so using their time,
And you'll keep them in health, and in freedom from crime.

—A. POWER.

A SEMI-TROPICAL ISLAND.

THE invalid, the pleasure-seeker, or the immigrant who takes passage on one of the fine steamers which ply between New York and Florida, will find himself some fine morning in the magnificent harbor of Fernandina, and will first touch the soil of the Land of Flowers on Amelia Island, near the northern end of which is situated the beautiful little town of Fernandina. Here passengers take the cars for Cedar Keys and intermediate places, and the cars or a steamer for Jacksonville, and places on the St. John's River. Few will give a thought, perhaps, to Amelia Island, its pretty town, its

magnificent beach, its unequalled natural advantages, or its historic associations. It deserves more than a passing thought, and it is for this reason that I purpose to tell the reader something about it.

Amelia Island is a long narrow strip of land, from half a mile to a mile and a half wide, stretching from Cumberland Sound on the north, to Nassau Sound on the south, a distance of about eighteen miles. It is separated from the mainland by Amelia River, a fine, broad stream, navigable throughout its whole length. The beach is one of the finest in the world, stretching without break from one end of the island to the other, and the roar of the breakers may be heard even on the shores of Amelia River.

The harbor of Fernandina is formed by the confluence of Amelia, Bell's, and St. Mary's Rivers, and is entered over a bar with seventeen or eighteen feet of water at ordinary high tide, between the northern point of Amelia Island and the southern point of Cumberland Island. It is capacious enough to shelter all the fleets of the United States, and is defended by Fort Clinch.

Near the northern end of the island is a village called Old Town, which was an old Spanish settlement, and has a history dating back almost as far as that of St. Augustine; and in view, up the river of the same name, is the old and historic town of St. Mary's in Georgia.

Fernandina is a young town of two thousand inhabitants, now slowly recovering from the effects of a disastrous fire which, last winter, destroyed nearly the whole business part of the place. Its destiny is to be to Florida what New York City is to the Eastern States of the Union—the outlet for her productions, and for a large share of those of the other Gulf States and of the West Indies, and the great commercial *entrepôt* of the State. Nature has so ordained it. Man has only to wisely co-operate with her to speedily bring about the full consummation. Steamers now leave weekly for New York, and twice a week for Savannah, Charleston, and still oftener for Jacksonville and St. John's River country, while there is daily connection by railway with Cedar Keys on the Gulf of Mexico as well as with Jacksonville. This is already a great shipping port for lumber and naval stores.

Fernandina is a handsome little town, with wide, well-shaded streets and attractive gardens, in which may be seen thousands of tropical and semi-tropical plants of great beauty, and growing with astonishing luxuriance. Here may be seen, side by side with the peach, the pear, and the plum, of cooler climates, the orange, the lemon, the lime, the banana, the guava, and even the date palm. The bamboo of the East Indies, lifting its sparse, linear foliage far above the topmost boughs of the orange, and surrounded by clumps of banana plants with their broad, tropical-looking leaves, gives the scene a singularly pleasing and oriental aspect.

The climate of Amelia Island, which allows the ripening of the banana and the guava, is as free from excessive heat in summer, as from killing frosts in winter. A narrow strip of land with the Atlantic Ocean and the tepid Gulf Stream on one side, and a broad river on the other, furnishes these exceptional conditions which give assurance of all the advantages which a lower latitude affords, without its debilitating temperature. Fanned by constant sea breezes, the summers are delightfully cool, while the winters are milder than those of interior places much further south. Add to this the fact that there are no swamps or ponds of stagnant water on the island to breed malaria, so that it is as healthful in summer as in winter, and you have a list of attractions which only a few favored spots on the earth can boast.

The soil of Amelia Island comprises almost every grade, from the poorest pine barrens and "palmetto scrub," to the richest hammock.

The facilities for transportation afforded by the New York and Fernandina line of steamers, together with its unequalled climate advantages, will ultimately cover the island with market gardens, truck farms, orange groves, orchards, and vineyards. "Irish" potatoes and green peas can be shipped from here in March and April, and other vegetables equally in advance of even Charleston and Savannah.

Hunting and fishing are good, as are the

facilities for boating, surf-bathing, driving, and horseback riding. What can the settler, the invalid, or the pleasure-seeker ask more? Hotel accommodations have been rather scanty, but a large hotel is now being built, which will leave nothing to be desired on that point.

D. H. JACQUES.

AMERICAN PHYSIQUE.

IN the *Woman's Journal* we find an interesting and rational article on the above topic from the pen of an experienced writer, who says:

"I was talking the other day with a New York physician, long retired from practice, who, after an absence of a dozen years in Europe, has returned within a year to this country. He volunteered the remark that nothing had so impressed him, since his return, as the improved health of Americans. that his wife had been equally struck. He said it, and that they had noticed it especially with among the inhabitants of cities, among the more cultivated classes, and in particular among women.

"It so happened that within twenty-four hours almost precisely the same remark was made to me by another gentleman of unusually cosmopolitan experience and past middle age. He further fortified himself by a similar assertion made him by Charles Dickens, in comparing his second visit to this country with his first. In answer to an inquiry as to what points of difference had most impressed him, Dickens said: 'Your people, especially the women, look better fed than formerly.'

"It is possible that in all these cases the witnesses may have been led to exaggerate the original evil, while thinking it over, and so may have felt some undue reaction on their arrival. One of my informants went so far as to say that he was confident that among his circle of friends in Boston and in London a dinner party of half a dozen Americans would outweigh an equally large English party. Granting this to be too bold a statement, and granting the unscientific nature of all these statements, they still indicate a probability of their own truth until refuted by facts or balanced by similar impressions on the other side. They are further corroborated by the surprise expressed by Huxley and some other recent Englishmen at finding us a race more substantial than they had supposed.

"My own impression has long been that nature is endeavoring to take a new departure in the American, and to produce a race more finely organized, more sensitive, more pliable, and of more nervous energy; that this change of type involves some risk to health in the process, but promises greater results when the new type should be established. I am confident that there has been within the last twenty years a great improvement in the physical habits of the more cultivated classes, at least, in this country—better food, better air, better habits as to bathing and exercise. The great increase of athletic games; the greatly increased proportion of seaside and mountain life in summer; the thicker shoes and boots of women and little girls, permitting them to go out more freely in all weathers—these are among the permanent gains. The increased habit of dining late and of taking only a lunch at noon is of itself an enormous gain to the professional and mercantile classes, because it secures time for eating and for digestion. Even the furnaces in houses, which seemed at first so destructive to the very breath of life, turn out to have given a new lease to it; and open fires are being rapidly reintroduced, as a provision for enjoyment and health, after the main body of the house has been tempered by the furnace. There has been, furthermore, a decided improvement in the bread of the community, and a very general introduction of other farinaceous food. All this has happened within my own memory, and gives *a priori* probability to the alleged improvement in physique within twenty years.

"And, if these reasonings are still insufficient on the one side, it must be remembered

that the facts of the census are almost equally inadequate when quoted on the other. If, for instance, all the young people of a New Hampshire village take a fancy to remove to Wisconsin, it does not show that the race is dying out because their children swell the birth-rate of Wisconsin instead of New York. If in a given city the births among the foreign-born population are twice as many in proportion as among the American, we have not the whole story until we learn whether the deaths are not twice as many also. If so, the inference is that the same recklessness brought the children into the world and sent them out of it, and no physiological inference whatever can be drawn. It was clearly established by the medical commission of the Boston Board of Health, a year or two ago, that 'the general mortality of the foreign element is much greater than that of the native element of our population.' 'This is found to be the case,' they add, 'throughout the United States, as well as in Boston.'

"It seems to me that all our present physiological tendencies are rather favorable than otherwise, and that the transplantation of the English race seems now likely to end in no deterioration, but in a type more high-bred, more finely organized, and also more comprehensive and cosmopolitan. All this has come about, if statistics prove anything, without loss of health, of longevity, or of physical size and weight. And, if this is to hold true, it must be true not only of men, but of women."

WOMAN AS A FOOD-GIVER.

BY JULIA COLMAN.

Popular Ideas of Cookery—A New Science—Soyer—Bad Eating—Woman's Indifference—Cookery at the Exposition—New Lines of Work—Skilled Work—A Large Industry.

Recipes.—An Apple Medley; Apple Butter; Whole-Apple Marmalade; Keeping Late Apples.

WOMAN is the universal food-giver of the race. From the snow-hut, where she takes from her boot-top the bone-dish that answers at once for a ladle and a plate to the dense tropical forests where she serves fruit on green leaves—from the boiled "praties and salt" of the Irish mother to the dainty *dejeuner* of the French housewife—from the variously prepared rice of the Arab or Hindu board, where she who cooks it is not permitted to eat it with her husband, to the elegant dinner of an American queen of society—all the world over it is almost the undisputed province of woman to order the serving of food, and, in most cases, to attend to the details of its preparation.

"Well, what of it?" queries a practical new-century woman. "We know all about that already. To cook and stew, to bake and broil, wash dishes, to set a table and clear it off again has been our lot in all the past centuries. The men think we must do it, and that it is enough for us to do, though, if they do not give us anything to cook, we may earn that, too, if we can find any way of doing it. Meanwhile, *they* will go about the world and do as they please. Now we propose to do as we please, also."

Very well, we say, go on and do it. At the same time we shall (the most of us) continue to prepare the food for husband and children, for the very good reasons that we can not afford to get any one else to do it, and that we can not trust any one else to do it properly. For, however some may affect to look upon it with scorn, it is evident that very important interests are involved, and that woman in this matter of food-giving holds in her power the future of the race more than the men do by any one thing now as exclusively in their hands. At the same time, however, we intend between meals to range creation over, not so much to find something better worth our doing, as to fit ourselves to do this well, and to be able to do other things well also.

POPULAR IDEAS OF COOKERY.

It is not at all surprising that women are so much disposed to turn a deaf ear to everything that may be said to them on the subject of improvement in cookery. Many

of the men who talk about it do so only because they wish to have their appetites pampered, or to have delicate dinners made up out of little or nothing—as they aver is commonly done by the French cooks.

Some will even go so far as to advocate the liberal education of women in this direction. "Put her to her books," they say; "let her study chemistry, physiology, and hygiene; let her learn to cook scientifically and artistically; then we shall have no more heavy bread and watery potatoes, lightning-streaked biscuit, burned roasts and bad coffee—that is just what we want of women. There is room enough for the employment of all the girls; and those women who are calling out for new spheres of action should turn their attention to this, and learn to do well what they have to do before they ask for more."

This is the substance of what a great many men say on this subject. It is aggravating, certainly, but it is hardly worth the while to say all that might be said in reply, especially as there is very little prospect of the realization of their wishes—and for this I am not sorry. Not that women do not need a broad education in that direction, but this is not broad; this is very narrow; and this way of putting things will never produce the desired end. The human mind will not accomplish the most satisfactory results under such restrictions. A dog or a horse can be trained in that way, and it answers very well for a dog or a horse, because all that is required of him is to carry out the purposes of his master to a certain extent. But a woman is mentally an independent being—capable of original research and investigation. We must take off the shackles, if we would have the benefit of the full exercise of her powers. Let her feel free to range through all the fields of science and art, through social, political, commercial, agricultural, and domestic economy; through law, medicine, theology, biology, and whatever else she will; and then, and only then, will she appreciate the immense importance of the interests involved in the proper nourishment of the body—then will she be moved to devise and to put in operation means for the accomplishment of this high purpose, and be but too glad to lay hold of so mighty an instrument for the elevation of the race—then will she bring all her powers duly trained, her exquisite taste, her delicate intuitions, and her unflagging enterprise to the task; and the preparation of food for her loved ones will become a beautiful and a favorite art.

The fact is, there is waiting for us women

A NEW SCIENCE

—one that will never be developed to any considerable extent until we do it. It is a science second to none in importance, and it requires for its development an acquaintance with all the sciences above-mentioned. Hitherto they have been applied to but a limited extent, and many of them not at all. As matters are now arranged, if there is any studying to be done, the men do it; and if there is any cooking to be done, the women do it; the result is very much as if one person should undertake to eat a meal of food and another digest it.

Hitherto woman has been content to take household science very much as she finds it. Her cookery she has learned of her mother or her grandmother, and she thinks herself attaining the highest perfection of art in that direction if she is able to adopt successfully the fancies of the cook-book or reproduce the delicacies of the French *cuisine*. And it rather puts the crown to her accomplishments if she be able to succeed in making those who enjoy her table sufferers from all the horrors of dyspepsia. This sounds barbarous enough, but we can not deny that there is a touch of admiration in the tone used when speaking of some poor dyspeptic: "His mother was an excellent cook, you know; so were all her family; they always set a good table." We find this tone pervading all talk about eatables. "He likes the good things," some one will say, half-reproachfully, speaking of rich, highly-seasoned dishes that are evidently hurtful to the partaker, or in which the subject is supposed to indulge greedily, though no one blames the cook for making them. I find another proof of the existence of this sentiment in the use I have just made of the words "rich" and "good," as if rich and good things were necessarily hurtful.

The secret of all this we find in the fact that inquiry is rarely made into the healthfulness of any dish. The only query about a new dish is, "Does it taste good?" or, "Is it nice?"—never "Is it digestible?" 'Is it nutritious?" "Is it wholesome?" This has been the acme of art as well as the practice of the common people.

SOYER

boldly pronounces the highest art of the cook to lie in making the wearied appetite return to the attack with newly-excited pleasure. Listen to his description of a successful attempt in that line. It is somewhat fanciful, but the idea is in accordance with the most of his teaching on that subject: "Some guests, chosen amidst veteran epicureans, seat themselves around a table covered with culinary offerings worthy only of the god of feasts and a small number of the faithful. Their indolent appetite examines, compares, and judges, and at length abandons itself to the incomparable dainties from which it unceasingly seems to draw new ardor. But, alas! pleasure, like pain, has its limits here below. The palate languishes, the stomach sinks, and that which before pleased, now creates only fatigue and disgust. It is then that the skilled cook tries a bold diversion, which must never be risked if the artist does not feel himself a genius. By his orders, three or four dishes—prodigies of science and luxury—appear on the altar which the sacrificers no longer heed. At this sight their looks brighten; desire revives; the smile reappears; the chest dilates; and you no longer distinguish your former guests. A man has transformed them." That is a picture worthy of a worshiper of Bacchus or of the goddess Victua. Soyer talks lightly on these subjects; and, but for the fact that he has written much and worked long in the same line, it might sometimes almost be doubted whether he were in jest or in earnest. Query, Is the typical Frenchman usually in earnest when he talks on morality? Perhaps so. Soyer himself seems to grow a little indignant when seeming to answer some supposed strictures on the morality of this kind of business. Listen again—it is not often you hear him talk: "Why render the cook responsible for the extravagant tastes and follies of his age? Is it for him to reform mankind? Has he either the means or the right? What is asked of him, and what can be asked? To understand exactly the properties of everything he employs—that is, its seasoning power, etc., for he has previously made taste the basis of judgment—to judge with a true taste, to degustate with a delicate palate, to join the skillful address of the hand, and the prompt and comprehensive glance to the bold, but profound, conceptions of the brain (admirable qualities in a cook, but to what purpose?) and, above all, it can not be too often repeated, to identify himself so well with the habits, the wants, even the caprices and gastronomic eccentricities, of those whose existence he embellishes, that he may be able—not to obey them, but to guess them—and even have a presentiment of them."

That is the kind of a cook some men would have us women be, even to guessing the wants of the person whose existence we are supposed to embellish! That is a man's idea of a perfect cook; but, mind you, in all his directions, he tells you little or nothing about the wholesome qualities of the materials with which he deals, unless they are immediately fatal. Many of his dishes are indigestible enough to make dyspeptics of anybody.

The results of such ignorance we see all around us. How much mischief constantly arises from this source it is impossible to estimate. Recognized dyspepsia alone comprises but a few of its victims. Every year adds to the lists of known diseases that result directly from

BAD EATING.

But, besides this, there is probably no disease known to which the system does not become more liable from improper nourishment. The greatest number of victims is taken from the ranks of little children. The bad eating of their parents bequeaths to them impaired constitutions; perhaps some dietetic indiscretion of the mother kills them outright in infancy; or, if spared, as soon as they are old enough to eat they are fed—nay, stuffed with the most indigest-

ible substances, and at the most unreasonable intervals. One mother, after detailing to me with tears in her eyes the sufferings endured and inflicted by an epileptic child, replied with an evident lack of all feeling of responsibility to an inquiry concerning the cause of the disease, "a fit of indigestion in infancy."

I know a man who is laid aside in the meridian of usefulness because he will have things that "taste good." Very well, our food ought to taste good; and, if I had the care of such invalids, I would make wholesome food taste so good to them that they would have no reason to desire any other. I do not think that a kind Providence designed that all the things that taste good should be hurtful. He certainly intended that we should enjoy the pleasures of taste; indeed, they play a very important part in the economy of digestion; for it is necessary that they should call up and set into harmonious action the entire gastric apparatus. If, on the other hand, the food that we relish hurts us, it is probably because we have bungled in the preparation, or because our appetites are vitiated by a long course of wrong eating.

Now much of this is due to

WOMAN'S INDIFFERENCE

concerning her responsibilities in this line. Whenever she does make extraordinary effort, it is usually only for display, to outshine her neighbor, to get the credit of setting a fine table, or because other people do so; or she does it to gratify the tastes of husband and children whom she delights to please—a worthy motive, but often a fatal and ignorant kindness.

But, in by far the greater majority of cases, she permits the matter to go by a kind of default. She gets the customary or the most convenient dishes, perhaps goes through an intricate and disagreeable round with just as little thought as possible. Certainly we know by many a lugubrious narrative that she often takes great pains to learn a tedious routine and become a proficient in it without profiting so much by her trials and vexations as to inquire if there be not a more excellent way.

COOKERY AT THE EXPOSITION.

We do not know of a more forcible proof of this, than to remind the reader of the utter absence of woman's hand in the culinary line from all the departments of the late Exposition. True, there were canned fruits, vegetables, and meat, but it was not by woman's device or preparation; nor, so far as we saw, any part of her ostensible display. There were crackers in large variety, but they were exhibited by manufacturing firms, and were probably devised by professional bakers, and executed mostly by steam machinery. There were griddle-cakes and biscuit, and blanc-mange, but they were cooked by men before your eyes; and the ladies were invited to eat, not so much to suggest to them any improvement in manipulation as to induce them to permit these manufacturers to do a portion of it for them. There was confectionery; we saw the women making some of that, and were sorry to see it, too. They might have been making something less injurious to the wayfarers who needed to keep their stomachs in the best possible condition.

One woman, with commendable enterprise, displayed a dish-washer, but that was hardly in the food line. It came a little too late, after the food was supposed to have been eaten.

There were restaurants, of course, to feed the people, but not to display our distinctive methods of cooking or our proficiency in that art. The "dairy" might have made a good thing in that line, but I should hardly be willing to admit that there was any effort in that direction. The great effort was to make money. The dishes were poorly cooked and poorly served, albeit I was very thankful it was there. The proprietors were so overrun with patronage that they allowed themselves to be swamped instead of showing themselves equal to the emergency, and providing quality and accommodations to meet the demand.

There was a New England kitchen, a good thing in its way, representing 1776 very well, but what was there to represent 1876? Are we standing still in this line or retrograding? There was a book of recipes

contributed by American women; designed, we believe, to represent American cookery, and, we opine, it does that too faithfully to make us very proud of it; but what was there about it to stimulate American women or any one else to systematic and intelligent improvement? It is to be hoped that the disparaging comparisons made between our own and the foreign restaurants in the park may stimulate us somewhat.

All this we say more in sorrow than in anger, and principally to call the attention to the fact that this great department of domestic art is most deplorably neglected by those in whose hands it rests. It is, indeed, to be hoped that when the American woman does turn her attention to cookery as a special field for the exercise of her powers, she will astonish the world, and turn out such results as other people have not yet dreamed of in their philosophy; but how long must we wait to see that time?

"Yes," says Mrs. Query, "but one of the most serious objections I have to your treatment of the cookery question, is that it keeps women in their old line of business. What we most need is the opening of such

NEW LINES OF WORK FOR WOMEN

as will enable them to secure new rates of wages, and not oblige them to work at half-pay prices, as they will do so long as they continue in the old routine."

I may rejoin that these lines are opening more and more every year, and that it will take time to effect such extensive changes. In the meantime it is very desirable for women to understand that a good quality of work is indispensable if they would get and keep high wages; so the sooner we introduce into woman's work the idea that skilled labor should command the highest prices, the sooner we help women to a permanently higher place.

But, really, women help themselves just as much by

SKILLED WORK

in the line of food preparations as they help the men, not only in health, but directly in a monetary point of view. A better acquaintance with food materials would help her much in purchasing. She would demand better articles, and not be so easily cheated. This of itself would not only save her a considerable amount of money, but it would raise the standard of articles offered in the market, and make producers take more pains, for they are guided largely by the demands of their customers. Suppose, now, that a woman supplies herself with a fruit-book, and that when she purchases any fruit she shall ask the name of the variety, and make a study of it at home, comparing it with the description in her book. In this way she will soon learn the different varieties in the market, and know whether any specimen is good of its kind, and whether it will answer her purpose. So of other articles, and so buying intelligently she will be able to buy economically.

All this, of course, takes time, and Mrs. Query says that a woman has a great many other things to think of. True, but then she has a great deal of time to think them in. Depend upon it, the best of us let a vast amount of time go to waste because we do not systematize our thoughts. We may as well be thinking about some of these things when we walk or ride, or sew, as to be speculating how much that lady probably paid for the dress she has on; whether the gentleman with her is her husband or her son; or a thousand other things on which we spend thoughts that might just as well be turned in some profitable channel. If we are to do well our part in this world's work, we must economize our time for thought as well as our time for labor.

And now, to follow a little further this example in fruit study. With one's eyes half open it is an easy matter to see how just such studies would often lead to the cultivation of these fruits; and such a natural opening to new employments is worth more than a dozen speculative talks about what fields women ought to enter. The production of food is

A LARGE INDUSTRY,

or collection of industries; some of which, especially the culture of the small fruits, is light, agreeable, and healthful enough for most women.

Still further; if women would learn what are the essential elements of food, and by what processes they are frequently destroyed,

they could save vast amounts in the aggregate, no small part of which might come into their own purses. Among these we may mention the making of "preserves," the manufacture of fine flour, the fermentation of bread, and especially the manufacture of alcoholic liquors. Many who are now in the habit of putting no small amount of fruit, sugar, and time into home-made wine, would cease to do it if they really understood the wastefulness of the process. And if the mothers understand the wastefulness of the manufacture, the children would soon learn it, and another generation would be some wiser and better for it.

We have thus given some of our reasons for saying that this business of food-giving opens up to women a broad and profitable field for experiment and improvement, and one that is now sadly neglected. Of course it is impossible in a mere glance like this to secure such an appreciation of its importance as comes with the study and observations of years; but there are already some women who are studying the merits of the subject and trying their hands in the line of improvement. When women get fairly into the freedom of the high range of studies to which we have referred, we shall expect to see the preparation of wholesome food take no second place among the arts of an advanced civilization.

RECIPES.

AN APPLE MEDLEY.—This is a very poor year for keeping apples. That this would be the case was foreshadowed by the great heat of the summer, and the unusual forwardness of the earlier varieties. Of course those who were wise governed themselves accordingly. They did not wait for any variety to begin to decay before they found out that it was ready to use, nor did they wait to use up one kind before they began to use another if that other showed signs of maturity. In short, they kept a little ahead of the usual programme, and used their apples while they were in their prime. Those who were *not* wise laid in large stores of apples because they were plenty and cheap, and laying their plans, as usual, are continually using half decayed apples, and being obliged to throw away a great many besides.

We tried to be wise. We had on hand many more apples than usual, because the trees bore more and there was less than the usual sale for them. Besides, we took some on a bad debt, which was so much more than we expected, though the apples were pretty good and in good condition; winter apples they were called, but we dried them just as they began to be mellow.

While we had our drying-room full of these, our fall pippins began to turn yellow. They were far too good to lose; great balls of golden richness, and we filled all our empty cans with these. Some of them we gave away (H. says I must not tell of that, but I thought if I did, some other poor widow might get some rich, handsome apples, that otherwise would rot in the cellar. What a good thing it is that Heaven sometimes sends an over-stock of good things so that the poor may rejoice in unwonted luxuries! Well H. is still obstinate, and I will yield the point. I am glad he is so modest about it, for really it was no self-denial to us. It was only giving them what we could not use ourselves.)

Now our jars are full again, I have been canning greenings and spitzenbergs this past week. We have about all the dried apples we can use, and something else must be done for variety, for I see plainly that we shall run short of fresh apples in the spring, so we will make some

APPLE BUTTER.

True, we have no cider, but we can make it without. Let us look over our material. Our Talman sweets must be disposed of soon. There is now and then a speck on them. We have also a very small native apple that is very sour. They are yet in their prime. They and the Talmans will go together, in about equal parts. We have tried them and know that they harmonize. We look them over and see that none are wormy or decayed, and wash them in warm water with a little soda in it, to facilitate the operation. We take them out into a colander, rinse off the soda, and put them to cook, nearly full of water, in a large porcelain-lined kettle, covering it closely. We let them boil half an hour, or until they are soft; the sweet ones being at the bottom. Then we turn off the water and return it to the kettle, and fill it up with pared, cored, and quartered Talmans, and set it over a slow fire. While these are cooking, we will rub the apples through the colander. If utensils are rightly adjusted, it requires but a little time. I have put a peck through in twenty minutes, and attended to the cooking besides. The best way is to have a stone jar wide enough to take on the colander easily, and rub them through with a common broad potato-pestle. If we wish to have it very nice, we should use no metallic utensils about it at all. For a long time I had a brown earthenware colander with which I always used to strain fruit, but that is broken, so I am obliged to use tin; and I hurry it through. I intend soon to get one of the granite-ware, not much more expensive than earthen-ware; quite as good, and imperishable. It is sheet-iron covered with

enamel instead of with tin, and not much thicker. It has lately come in vogue, and makes admirable cooking and kitchen utensils.

WHOLE-APPLE MARMALADE.

This method of cooking apples whole and straining them, takes far less time than paring, quartering, and coring them, especially if the apples are small. But the greater advantage is that you get the flavor of the skin, which in many cases is delicious. This strained sauce of itself makes excellent marmalade, even though so much of the juice has been drained off. Some of this I shall use after an hour or so for this purpose, and the remainder I shall put in with the sweet apples already cooking, to form a part of the apple butter.

For this purpose small apples are much better than large ones, because they have much more skin in proportion; but it is advisable to try them first in small quantities, to make sure that the flavor is agreeable. So with regard to these combinations of different apples. If you wish to make up large quantities of kinds as yet untried together, it is best to try some first, and then you are sure of your ground. I have here some gilly-flowers which are very poor cooking apples, but I shall try them with a mixture of sweet and sour, or a small proportion of the latter with some canned quince. I made up some pippins last fall with a small proportion of sweet apples and about one-tenth part quince, and it was delicious.

If you have both sweet and sour apples and use them judiciously, you will need no sugar at all, and there will be much less danger of scorching. I do not stand over my kettle to stir it; but that is owing to several reasons. One is, that I put in the sweet apples at the bottom before I put in this strained apple; but the main thing is, that I do not have the fire very hot. All that is necessary is to have it simmer nearly all over the surface. At the last I shall stir it more. I let it cook in this way five or six hours. Then I shall put it away in stone jars in a place where it will be very cold, but not freeze. I know that old folks used to freeze their cider apple sauce, but I did not think it was at all improved by the operation.

RECORD OF SCIENTIFIC DISCOVERY.

DEVELOPMENT OF THE TRICHINA SPIRALIS. — Some recent experiments by Professor Kuhn, of the University of Halle, are such as to command the attention of consumers of pork. Selecting five healthy pigs, Professor Kuhn fed them with flesh containing trichinæ in the following manner: To the first—an animal seven months old—he gave 100 grammes of trichinous cat's meat and 91 grammes of trichinous dog's meat on three successive days. The second, of the same age, was fed with 100 grammes of the one and 80 of the other for four days. The third, a year old, was given 100 grammes of trichinous dog's flesh, and 100 of trichinous pork for four day. To the fourth, three months old, 103 grammes of trichinous pork were administered for seven days. The fifth, six weeks old, ate 300 grammes of non-trichinous pork during the seven days of the experiment. All the animals sickened more or less under the treatment, but only the fourth died. In the nutritive canal of the latter was found an almost incredibly large mass of trichinæ in the initial stage of development, while the muscles were already seriously infected with half-developed muscle-trichinæ. Having slaughtered the other four, Professor Kuhn prepared 300 slides in all, namely, 45 from the striped muscle of the hams of each and 15 of each from other parts of the body. The following table shows the number of trichinæ per pound in each animal, as calculated from the data afforded by the preparations; and from it the reader will readily gather that lean pork (muscle) is decidedly more dangerous than bacon and other portions of the structure:

	To each pound of muscle.	*Per pound elsewhere.*
No. 1,	304,092	110,964
" 2,	578,945	177,192
" 3,	684,208	307,367
" 5,	8,605,233	4,491,607

It thus appears that the development of these organisms in the muscles of affected swine is about double that of other portions of the body. This development is marvelously rapid. From experiments made by feeding healthy animals with infected flesh, it appears that fully-developed females may be found in the muscles of the inoculated animal in about 54 hours after administration of the food. Within 90 hours most of these females are found to have been fecundated, and to be filled with embryos, and in about 120 hours a crop of young trichinæ has already been produced. The male dies immediately after the act of fertilizing the female, but the latter lives until the very last embryo has been developed and discharged. The embryos developed within a single female vary from 60 to 80. The trichina was discovered in 1832 by Professor Hilton, of London, one of the physicians at Guy's Hospital, in the muscles of an aged patient, who had died in the institution, but was first fully described by Professor Owen, who, in 1835, gave it the name by which it has since been designated. In the same year, Heule, of Berlin, prepared sections of muscle from the cadavers of persons that had died in the hospitals of that

city; but it was not until 1862, when the great epidemic of trichiniasis startled Germany, that the habits and development of the worm were systematically investigated. The incredible rapidity of their propagation appears from the foregoing table in the experiments incident to which the animals were killed on the seventh day after feeding.

Measurement of Angles by Bees.—The editor of the *Record* begs pardon for laying before readers some observations as to the structure of the compound eyes of the higher insects, that may possibly furnish a basis for the scientific explanation of the accuracy with which bees measure angles. As most readers are aware, the cornea of the insect-eye consists of a single membranous layer of transparent lenses or cells, sometimes hexagonal, as represented in standard works, but almost as frequently round or square, depending on their situation. These cells, or double convex lenses, are about $\frac{1}{3000}$ of an inch in diameter, and, by a method of experiment calculated to ascertain their thickness, I find it to be in bees about $\frac{1}{18000}$ of an inch. The cornea is not movable as respects its position but, by means of a circular muscular band, it can, as a whole, be rendered more or less convex, according to circumstances of vision. If a calculation be entered into, as concerns the accuracy of direction of which convex lenses so minute are susceptible, compared with the lenses of the human eye, it will appear that, whereas the average deficiency as respects the estimation of angles in a trained geometer, is about one degree in ninety, the deficiency as concerns the eye of of a bee can not exceed $\frac{3}{1000000}$ of that amount—that is to say, if a human eye may be stated as able to distinguish dimly between an angle of 89 degrees and one of 90, the eye of an insect is, by calculation, capable of distinguishing between an angle of $89\frac{999997}{1000000}$ degrees and an angle of 90. The extraordinary nicety with which building insects construct their works is thus readily accounted for by the extraordinary nicety of perception consequent upon such a congeries of lenses, and by the immovability of the eye as concerns its position in the head, without the necessity of calling in a special instinct. The lobster, the eye of which terminates a bulb styled the eye-stalk, and has a cornea consisting of square lenses, shows, under extraordinary circumstances, a nicety of perception as concerns direction, which approximates to that of insects.

Alternate Generation and Parthenogenesis.—Considerable discussion has been excited in German circles by a recent lecture delivered by Dr. G. A. Komhuber, of Vienna, in which the recent aspects of alternate generation are thoroughly considered. The propagation of organisms consists in general, of course, in this: that certain physical constituents are, under certain circumstances, separated from the parent organism, and develop into other individuals of the same species. If the action of a second animal substance is essential to the development of the germ, it is then styled an ovum, and the process is described as sexual propagation; but if, under favorable circumstances, the germ may become a new being without fecundation, this simple, but very exceptional process is called unsexual or organic reproduction. Alternate reproduction and parthenogenesis belong uniquely to the domain of a sexual propagation, to the study of which Steenstrup, the celebrated Danish naturalist, gave a strong impulse in 1842, by the publication of a brilliant essay. By alternate generation Steenstrup intended to give a name to the process by which a mother organism produces progeny differing from the parent in structure, but endowed with a capacity for producing other organisms of the same type as the mother animal; that is to say, the first generation is reproduced in the third, the second in the fourth, and so on in alternating series. Sometimes, however, the return to the original type is deferred until the third, fourth, or fifth generation; the peculiarity consisting not only in the alternation of different progeny, but in combined sexual and sexless propagation, one generation presenting a system of sexually developed males and females that reproduce by fecundated eggs, and the next being sexless and propagating by fission, by budding, or by germs. Steenstrup was the first to give the name of nurses to animals capable of organic multiplication, because it is their function to furnish aliment for the development of the sexual animal. The number of sexless intermediate generations, as well as their degree of development, differs very materially in different species. They always either possess provisory or temporary organs, being, therefore, true larvæ, or they are fully developed individuals and have the structure and habits of sexual animals, although unsexual. Of the sexless larvæ, such as those of butter flies, that are developed by simple metamorphosis, none have the ability to multiply by the organic process, and they are thus distinguishable from proper nurses. According to Lenckhart, therefore, alternate generation with nurses may be considered as an organic reproduction combined with metamorphosis.

The first observations on alternate generation, now generally styled metagenesis, were made on the salpæ, a species of mollusk abounding in the Mediterranean. They belong to the tunicata, and swim a little beneath the surface in oval or cylindrical bodies, clear as crystal, being often connected in long series. Their movement is performed by taking in water and expelling it again. A German lyric poet was the first to suggest that the isolated salpæ often observed could not be members of a severed series, because they were very unlike the individuals of the series, but always contained progeny resembling the series, while the individuals of the

latter contained embryons exactly similar to the isolated specimens. His memoranda were published in 1819, but were at first ridiculed as visionary. Not Steenstrup, the naturalist, but a poet, was thus the discoverer of alternate generation in animals. Steenstrup, however, gave due credit to his predecessor, by verifying his views as concerned salpæ, and proving that the series is composed of sexual animals that generate an embryon from an egg, which remains connected with the mother by a placenta for a considerable period, then escapes and develops into a solitary salpa. This is the only case of viviparity observed among the tunicata. The solitary salpa next generates a connected series of sexually developed individuals by germination from buds, which replace the usual male and female organs of generation and thus stand in the attitude of a nurse.

The *Aurelia aurita*, a species of unfringed medusa, presents also some curious phenomena. These animals appear in swarms during the summer along the shores of the Baltic Sea, swimming a little beneath the surface in a slow and deliberate manner. They are pellucid and bell-shaped creatures, presenting their convex surfaces upward. Their sexual organs are ruffles on the interior membrane of the gastric cavity, which open outward at the bottom of the stalk, and communicate with seed-bags in the same cavity. The seed of the male passes, by a simple ciliary motion, into the seed-vesicles of the female portion of the organism, and comes in contact with the ova, which, after fecundation, pass outward into the folds of the tentacles, where they are developed as embryons and provided with a very tender covering of cilia, by means of which, as anamalcules, they move about freely in the water. These forms were once considered as a separate species and styled *planula*. The cilia soon falls off, and the animalcule, having now no organs of locomotion, sinks to the bottom, becomes fixed to some object, and commences to elongate, a cavity appearing in the free end. From this a mouth is soon developed, and papillæ shoot forth and are converted into tentacles by a surprisingly rapid metamorphosis. The animal is now polypoid in structure, and is the same that was once styled the *hydra tuba*. Months may now elapse previous to a second transformation, but by and by a depression appears just below the crown of the tentacles, then another, and another. The depressions deepen, short projections spring forth on their edges and develop into new tentacles, and this continues from above downward until the creature resembles a series of cups, one within the other, all resting upon a common stalk. Finally, one after another, these cups separate from the pedestal, attain their full maturity, and appear at the surface as the bell-shaped animals previously described. The polypoid stage represents the nurse in this instance, and the propagation at this stage takes place by germination and fission, each individual thus produced becoming a sexual medusa. In some of the hydroid medusæ a lower type, the disk being provided with a velum, alternate generation also takes place, but the polypoid stage (or nurse) attains a more advanced development after leaving the ovum, growing to be a large stalk, and putting forth numerous polypi. When, however, the colony has arrived at this high degree of polypoid organization, the sexual animals are formed, separate from the stalk, swim about independently, and deposit their eggs in secluded spots. In others, as in the fresh-water polypi, the sexual animals appear only as globular appendages, not capable of becoming individuals, but remaining fixed to the stalk and constituting simply organs for the production of sexual secretions. This is the imperfect metagenesis of Gegenbauer.

Our Atlantic waters furnish a remarkable example of the latter in the *oraya dipheys*, with its many-shaped colonies. From the transparent ovum comes first a ciliated larva, as a nurse stage, from the plastic material of which are differentiated, first, a locomotory piece (the posterior of the two swimming bells at the beginning of the stalk of a ripened colony), and, secondly, an appendage that develops into a second bell and the common stalk of the colony. The individuals bud from this stalk in a fixed order, but never separate from it, remaining to the end so connected with the stalk that their abdominal cavities open into it, or rather into a canal passing through it. These individuals serve very different physiological purposes, however, and are not all formed alike. In every tuft of the stalk, often as many as fifty, some of the buds develop into nourishers, or trumpets furnished with suction tubes; some into aggressors, or long tentacles furnished with terminal cells similar to those of the nettle; some into defenders, or helmets to protect the nourishers; and some into reproducers, the latest developed, consisting in racemous diœcious capsules swinging in small swimming bells. By the alternate contraction and expansion of the bell-shaped swimmers at the upper end of the colony, with which the smaller bells move in unison, this complex creature is propelled through the water. The medusa bell is the basis of the whole creation, but here, under peculiar circumstances and in a very low type of organism, the reader has a glimpse of the rudimentary principle of complex distribution of function that prevails in the higher animals. In a few allied species, such as the physalids and vellelids, the sexual animals separate from the nursing stalks and have a brief existence as individuals. The study of intestinal worms, such as the tape-worm, will furnish the reader who wishes to follow out these hints, with many curious phenomena respecting metagenesis. Plant-lice also present accessible studies in this field, although here the nurses are mature individuals.

AGRICULTURAL HINTS.

[The mind is the man. Farming, in the highest sense, is not simply doing the hard work necessary. This can be done by muscle when directed by brains. The true farmer is he who can plan, direct, and control skillfully.]

As this department is one which should contain the most recent gleanings of wisdom and experience, our readers and friends in the rural districts are invited to send us any items of value to agriculturists in general, and which should have a wide circulation. Due credit will, in every case, be given to the contributor.

Okeefinokee Swamp to be drained.—A company which was organized several years ago, is about to begin operations for the draining of the rich and varied marsh lands known as Okeefinokee Swamp in Georgia. The *South* says: "Geographically and hydrographically, this high land swamp, or basin, as it should more properly be called, with its surrounding plateau, is one of the most peculiar sections in all this country. That portion which is designated as 'the swamp' is the lower level of a plateau which covers something over a million of acres of land. The swamp lies upon the southern and southwestern portion of this plateau, and extends on its eastern side to within about six miles of the St. Mary's river, and to within a less distance on its western side to the Suwannee river, which flows into the Gulf of Mexico. It has an elevation above the level of tide water in the St. Mary's of about forty feet, and of about fourteen feet above the Suwannee; hence the drainage of the entire swamp will admit of easy and thorough accomplishment."

American Beef and Mutton in Europe.—Within a few months a new feature in the American export trade has made great strides toward an important position. We refer to the sending of fresh beef and mutton in refrigerators to Europe. There are now seventeen Atlantic steamships provided with patent refrigerators, capable of holding about one hundred and fifty carcasses each. The meat competes with English in London and Liverpool, and our mutton finds a ready sale, and the profits are such that other steamships are being equipped for the transport. Besides this, our wheat, flour, and provisions are relied upon by increasing numbers in Europe and South America; and game and fruit and wine have more than occasional shipments.

Cheap Garden Walks.—We find this in the *American Builder*, and we doubt whether a good walk can be more easily and cheaply made: "Take one part of coal ashes, one part of sand, such as is used for mortar, and two parts of clay. Mix well together, a little stiffer than mortar, lay at least four inches deep. When dry, it will be as hard and compact as stone. Another way is to collect all the stones you can that are about the size of an egg, placing the largest ones on the bottom, fill up with ashes, sand, and clay, and you will have a walk as solid as a plank."

Too Many Fences.—I notice many farms of from fifty to two hundred acres, upon which the matter of fences must be about as much an encumbrance as would be a heavy mortgage. Indeed, I have sometimes thought that the removal of at least one-half the fences upon these farms, would be a good step toward removing the debts under which some of our most industrious and hard-working farmers are laboring. Not only this, but it would also lighten the demand that is constantly being made upon their time and patience to repair fences. Dividing a farm all up into fields of from one to five acres, seems to me to be useless. Good line fences are generally a necessity. But after that, fences to inclose pasture-land ought to about end the matter. Of course, circumstances may require a few extra fences, as about garden, orchard, etc., yet I think many of the inside fences might be dispensed with to great advantage.—*Cor. Germ. Telegraph.*

Apples in America.—In the United States there are nearly one million acres devoted to the apple. In Pliny's time there were said to be twenty-two varieties known to the Romans; but we who live to-day have the benefit of over two hundred kinds. To think that all these diverse varieties, from the king to the golden-sweet, came from the harsh and acrid crab, and are largely the result of patient culture devoted to specific ends, shows what elasticity lies buried in Nature, and only awaits the genius of man or the favor of God. In England, where they have poorer oysters than we have, they also have poorer apples. The fruit requires the alternation of cold winters and warm sunshine, and draws its elixir and lusciousness from a favoring soil. The result is, American apples form an immense export trade, and are eagerly sought abroad. I am told there is a farmer in Ulster County, New York, who devotes two hundred acres to one kind of apple—the Newtown pippin. This orchard is picked every year by hand, the fruit is carefully barreled, and the whole crop goes to the English market, where it brings the highest price. It is said that there

is no such variety as a distinctively "sweet apple" known in England.—*Exchange.*

Milk as a Disinfectant.—A practice is prevalent in some parts of the country which shows the power possessed by milk to absorb the impurities of the atmosphere. It is that of placing a saucer of new milk in a larder, to preserve meat or game from taint. It not only serves that purpose, but the milk at the end of a few hours becomes so impure that no animal will touch it.

Training Grape Vines.—A grape-grower writes: "Young vines have always given the best results with me; those one and two years old are to be preferred for planting. If you are setting a vineyard, eight feet by eight feet is a good distance for most varieties. The first season train only one shoot, and cut back in autumn to two or three buds. The second year train two shoots, and in autumn, if your vines have grown as they should with good cultivation, you will have two arms four feet long. The first two seasons a good stake will be all the support the vines will need, but the third year a trellis of some kind, either of slats or wire, will be necessary. To the lower slat or wire the two arms grown should be tied at the commencement of the third year, and your vines are ready to be trained upon any system you may choose, either the close-spur method or the renewal. And here is where the novice often blunders, following, perhaps, too closely the rules laid down in the books, and cutting back to two eyes every season. To our rampant native vines, like the Concord and Hartford Prolific, such excessive pruning I have found injurious, and tending to promote the growth of wood with but little fruit. If any one should ask me how to prune an old and neglected vine, I should say, cut away as much old wood as possible and leave as much new as possible, or rather, prune on the renewal system, modified to suit circumstances."

Experiments recently made in England indicate that wagons are most easily drawn on all kinds of roads, when the fore and hind wheel are of the same size, and the pole lies lower than the axle.

Keeping Tools in Winter.—The editor of the *Progressive Farmer* thus humorously admonishes our country friends:

"And now, dear farmers, such of you as are tired of the old tools, let us give you a bit of advice. If you don't take it any better than advice we have given you on former occasions, all right—it will be no great loss to us; so here it is: Do not rub linseed oil on your fork and shovel and rake handles; do not paint your ploughs and mowers; do not use any rust preventive on the iron and steel parts; and above all, leave everything out of doors. You really have no idea how quickly you will possess a new set of tools, provided you have a balance at the bank. Only seven mowers and one reaper out in the air in a stretch of ninety miles! And only one set of harness! Well, we will hope for a better report from that section the next time our contemporary goes that way."

Fall or Spring Planting.—Our own opinions on this subject are confirmed by the views of most pomologists of the day. D. E. F., in the *Observer*, has some practical suggestions which are worth repeating here:

"Novices are sometimes puzzled as to the comparative merits of fall or spring planting of trees and vines. Possibly the locality and soil may sometimes make a difference, but generally, if the work is well done and the soil is in proper order, there is no risk in either case. As a rule, I think there are several advantages in fall planting. One is, that there is usually not so much hurrying work—the planting season extending from the fall of the leaves until the earth freezes or the weather becomes too cold to work with bare hands. In 1866, I planted 240 pear trees early in December with most excellent success.

"A second advantage is, that the fall planted trees get an earlier start in the spring than those planted in the spring, and, of course, have a longer season for growth. Some contend that fall-planted trees are apt to be displaced by high winds and the settling of the soil about them, but no such result need be apprehended if the work is done right. Every root should be placed as nearly in its natural position as possible and fine earth carefully packed about it with the fingers; no two roots of any size should be left to touch each other, and when all are covered, the upper earth should be trodden down carefully, and then not much future settling need be apprehended.

"With these precautions, including the proper pruning of the tops to correspond with the amount of roots, planting at either season is safe enough. It is specially important that this proportion between roots and tops should be maintained, because, by leaving too much top, the amount of leaves, which are the lungs of a tree, make a draft on the roots which they may be unable to supply. In that case, a feeble and stunted growth will be the result, and in some cases an early death even after a full show of foliage. It is always safe to cut back pretty thoroughly at the time of transplanting; the tree will be more certain to live and do well, and will the better maintain an erect position until the roots are well established."

MRS. C. FOWLER WELLS, *Proprietor.*
H. S. DRAYTON, A.M., *Editor.* N. SIZER, *Associate.*

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NEW-YEAR REFLECTIONS.

TO our subscribers and friends we send greeting, and most cordial wishes for their health and prosperity during the year which has just begun. The times to many, perhaps to the most of them, may be "out of joint," and difficulties and perplexities may bear hard upon them, but complaints and repining will not mend matters; while a courageous, hopeful spirit will enable one to "pull through," and assist greatly toward securing a better condition. People get easily into the habit of complaining. We know business men who appear to be constitutionally disposed to it, and however much their enterprises may succeed, are always ready with their *ifs*, *buts*, and *might-have-beens*. Business generally is depressed. Circumstances, political and social, have contributed to this condition. Let our people use their perception and reflection seriously in determining the causes, and then apply their intellectual and physical powers earnestly to the removal of those causes, and a fresh tide of activity will begin to flow. The prosperity of five or six years ago was one of extravagance and profusion, not that healthful activity which conduces to solid progress. The economies in the different ranks of society were disturbed and irregular; men and women glutted with luxuries, forgot or disdained to regard necessaries; prudence, carefulness, frugality, sobriety were contemned. Suddenly the ebb began, just when merchants, manufacturers, brokers, bankers, "operators" were chuckling over the prospect of great profits, and the world of fashion was extending its scale of display, glitter, and equipage. Crisis succeeded crisis. Failure, wreck, ruin, disclosed the weakness and imprudence of thousands who had been "looked up to" as the brilliant, *enterprising* leaders of business and society. They were tested and found wanting. Unfortunately, however, the fall of many such men involved loss and sorrow to thousands of industrious, steady, unpretending people, those who give to communities character and strength. Here was the most serious part of the trouble; and here the "hard times" pinch most now, and, we presume, will always pinch, until the time comes when there shall be no more agents, brokers, operators, or whatever else may be their name, to trade and trifle with the credit and capital which the industrious classes produce.

Pride will have its fall. Evil-doers will be brought to judgment. The honest, though persecuted and suffering, can be at peace with themselves, even happy in the conviction of doing the right and loving the true. "To the righteous good shall be repaid," is one of the many promises written in the Scriptures for the consideration of the virtuous.

As in the time of depression and scarcity the well-ordered, frugal housekeeper will maintain an air of cheeriness and comfort in her household, so the man whose mind is well-ordered and harmonious will meet obstacles and disasters with composure, and with patient energy set about their removal

and retrieval, while the unbalanced, disorderly mind, in a like condition will be fretful, despondent, impotent. Here comes in mental science to regulate, improve, and fill out mind, so that men may the more efficiently exercise its faculties, and the more safely prosecute the business of life, and so the more surely obtain its rewards. "The mind is the man," and the incidents of life show its qualities noble or mean, strong or weak. Wise is he who aims to develop a higher degree of intellectual and moral capability than he thinks himself to possess. Patient effort, study, and reflection will accomplish the object. Mere physical surroundings can not prevent one from making mental progress. Else, where would be the hundreds of great men who rose from the soil to be leaders in their day and nation?

We are earnest, therefore, in bidding our friends to be of good cheer, and to take courage, and we are very willing to accept such counsel for ourselves. For

"This life is not all sunshine,
Nor is it yet all showers,
But storms and calms alternate,
As thorns among the flowers.
And while we seek the roses,
The thorns full oft we scan,
Still let us, though they wound us,
Be happy as we can."

THE PRESIDENT MUDDLE.

THE recent election for a President to serve from the 4th of March next has developed a state of affairs political in the South which a good citizen could not contemplate without sorrow. The partisans of both sides in canvassing the votes of many districts have shown a disposition in which a regard for accuracy and truth has little or no place. Meanwhile the whole machinery of the election has been hindered from accomplishing its final results, because of this fraudulent meddling with returns affecting but a few electors. It is now made evident, if never before, that the electoral system of securing a President is totally unsuitable to our times, being cumbersome, indirect, and incapable of fairly exhibiting the popular will.

The vastness of our territory, and the growth of our population, demand an elective machine simple in its operation, and incapable of easy manipulation by professional politicians.

A most important influence of the political uncertainty—the one which chiefly concerns the interests of the people—is the general depression of commercial affairs. Just prior to the election there appeared to be a revival of a very encouraging nature in business generally, but the failure to reach a definite conclusion seemed to paralyze the nerves of trade, and to fill the public mind with gloomy forebodings. This evolution of the political contingency is its most disastrous one, and will probably work out some change in the system. A losing policy will not be tolerated long by a great people whose industry and economy are the chief features in their private enterprises.

HEALTH A DUTY.

A CORRESPONDENT writes: "I have been accustomed to view the subject of diet as subordinate to that of the training and culture of the mind. You appear to consider it, if I make the right inference from opinions expressed in the JOURNAL, of almost equal importance. How is it?"

We hold that it is one of the primary duties to keep ourselves in excellent physical conditions: in fact, to order our habits so that they shall conduce to the best health of which our constitutions are susceptible, is just as much a duty as to cultivate the sentiments of honesty and good-will. Just con-

sider the effect of being ill upon others. Is it not an improper infliction? He who is sick becomes incapable of performing his normal work; and if his sickness be severe, he prevents others from doing their normal and productive work. Hence there is much resultant loss to society.

We grant that there exist cases of invalidism which may contribute richly in the way of moral strength to the community, but they are rare. The familiar side of ordinary invalidism is characterized by complaining, peevishness, exaction, which we are wont to take as matter-of-course accompaniments of illness, and we treat the "patient" in that gentle, sympathizing manner, which implies that his affliction is some unaccountable thing, and not an effect of conduct for which he is responsible. Some moralists, the Concord philosopher among them, go to the length of asserting that sickness is a kind of sin, because it is not only in its immediate effect a hindrance to the free activities of normal life, but also because of its being the direct or indirect consequence of transgression of physiological law.

Allowance, certainly, should be made for popular ignorance of the nature of such law. But in time one would think that the sore experiences of ignorance would stimulate at least the intelligent to more earnest endeavors for light and knowledge. At any rate, those who claim enlightenment in hygienic affairs should lend a willing mind to the work of instructing the people at large in the things pertaining to health. "My people are destroyed for lack of knowledge." In no respect is the application of this prophetic declaration more definite and clear than to the physical habits of people. Society is full of its "skeletons in the closet" and out of it, its asylums, infirmaries, hospitals, and prisons, because of our failure to know and practice the true and useful.

THE TURKO-RUSSIAN SQUABBLE.

IN Europe the "war cloud" is still threatening, and ministers are busy in negotiations to avert what they know would be a tremendous catastrophy, and yet save to their respective nations honor and prestige. On the one side we see England, France, and perhaps Austria, substantially advocating the cause of the semi-barbarous Mohammedan. On the other we see Russia in sympathy with insurgent Servia, and anxious to obtain a maritime outlet upon the Mediterranean for her increasing commerce. Who can wonder at the impatience with which an empire with the tremendous resources which Russia possesses, should be kept in check—prevented from utilizing many of its natural advantages—by a weak, supine people whose religion, language, habits, are altogether out of harmony with the civilization of Europe.

There is something paltry and contemptible in the policy of a nation boasting a high order of Christianity which seeks to prop up an effete race simply because of jealousy! Russia is out of her swaddling-clothes. She is conscious of her nascent energies, and is entitled to consideration for the increase of her contributions to the world's progress. Why should Turkey's bad be preferred to Russia's good elements in western civilization? But our Mediterranean, African, and Indian interests will be jeopardized by permitting Russia to obtain a hold upon the Bosphorus! exclaim the jealous Christian powers. It seems to us that Mentor's advice to Idomeneus and the Allies would be fitting in this case, that instead of attempting to destroy each other with fire and sword, they should closely cooperate in friendly effort for each other's improvement in all those good and useful arts which conduce to human happiness.

As a suggestion we offer it, that the United States be invited by the powers of Europe to act as arbiter in the settlement of the great muddle. "Blessed are the Peace-makers."

LOOK OUT FOR FIRE.

NOW that winter is again upon us, and every house has its one, two, three, or more fires kept burning to warm rooms to a comfortable temperature, it is in place for us to say a word or two with regard to the care which should be taken against setting one's house on fire. Almost every conflagration is due either to carelessness or incendiarism. We very rarely hear of spontaneous combustion, or of a fire whose origin can not be ascertained. Some of the most extensive conflagrations have been started by the overturning of a lamp, or by dropping a lighted match upon very inflammable matter, or by merely shaking hot ashes from a cigar or tobacco pipe. Many a costly house has been destroyed by the kindling of a single match which had fallen upon the carpet and had been trodden upon by one of the family. Children have been permitted to play with matches to the loss and sorrow of many a parent.

People generally should see to it that all inflammable matter be kept well away from the stove, fire-place, grate, or register. Clothes should not be left close to the stove to dry, unless there is some one at hand to care for them. Matches should be kept in metal or earthen boxes, well out of the reach of children. Open fires which are kept burning all night should have a metal guard or screen placed before them, or some arrangement by which they can be shut in. Kindling wood should not be placed to dry on top of a stove.

Stove-pipes should be well set in chimneys, and metal receptacles provided for coal ashes. Keep kerosene lamps and cans away from the fire-place, and use no oil which will ignite in an open vessel. Fill no lamps at night. If gas be used, see that the brackets are not swung close to wood-work, curtains, or shades.

Every bed-room should be provided with a strong rope which might be used for reaching the ground from a window, should the occupant be awakened at night only to find his escape through the door barred by advancing flames.

MADAGASCAR'S QUEEN vs. RUM.

HOW strange it is that in some things most intimately affecting the moral and physical life of men, heathen authorities exhibit a clearer discernment, and a more definite line of conduct than Christian statesmen. Witness, for instance, the late manifesto of the Queen of Madagascar against the sale and use of rum in her dominions. We "civilized" people may be admonished by that far-off islander who reasons while she commands. Here is the document in an English dress:

"I, Ranovalomanjaka, by the Grace of God and Will of my People, Queen of Madagascar, and Defender of the Laws of my Kingdom:—

"And this is what I say to you, my subjects. God has given me this land and kingdom; and concerning the rum, oh, my subjects, you and I have agreed that it shall not be sold in Antananarivo, or in the district in which it was agreed it should not be sold. [Imerina, the central province.] Therefore I remind you of this again, because the rum does harm to your persons, spends your possessions in vain, harms your wives and children, makes foolish the wise, makes more foolish the foolish [literally gives heart to the foolish], and causes people not to fear the laws of the kingdom, and especially makes them guilty before God.

All this shows the rum to be a bad thing to have at Antananarivo, for at night (under its influence) people go about with clubs to fight, and they fight each other without cause, and stone each other; therefore why do you love it, oh, my people?

"But I tell you that trade in good things, by which you can earn money, makes me very glad, indeed, oh my people. If you trade in rum, or employ people to trade in it, here in Antananarivo, or in the district spoken of above, then, according to the laws which were made formerly, I consider you to be guilty, because I am not ashamed to make laws in my kingdom which shall do you good. Therefore I tell you that if there are people who break my laws then I must punish them. Is not this so, oh, my people?

"Says Ranovalomanjaka,

"QUEEN OF MADAGASCAR.

"*August* 8, 1876."

OBITUARY.

HENRY B. GIBBONS, phrenologist, died at his residence, Newport, Herkimer County, New York, on the 17th of October last, aged sixty-five. He entered the field of phrenology as a lecturer in 1843, having been a pupil of Nelson Sizer. Mr. Gibbons was a native of East Granville, Massachusetts, and was a man of uncommon practical sagacity. He had a clear, sharp intellect; a most retentive memory of facts, persons, and places, and, as a phrenologist, was a remarkably accurate reader of character; able to bring to the illustration of his subject any fact which he had ever experienced or heard of. He was intuitive in his grasp of character, succeeding often in a manner truly wonderful in tracing the obscure and hidden qualities of those whose organizations he was called upon to study. In boyhood he received an injury to one knee, and had what is called a white swelling, or fever-sore, from which he suffered greatly for ten years. The knee finally healed, but became stiff, and rendered him a cripple for life. A few weeks before his death, having exercised a little more than usual, the crippled knee became inflamed, then suppurated, and was the cause of his death. We gladly bear testimony to his excellent character, and to his talent and sincerity as a phrenologist. He leaves an estimable wife, an adopted daughter, and a wide circle of friends to mourn his loss.

CLIMATIC CHANGES IN RUSSIA.—The winters in Russia are becoming colder every year, and the summers hotter, more dry, and less fruitful, owing, as is clearly stated by Livingston, to the destruction of the woodlands which formerly abounded in the southern districts. The clearing of these lands has caused such enormous evaporation that many once capacious water-courses have become mere swamps or are completely dry. The Dnieper becomes every day more shallow, and its tributaries are no longer worthy of the name of streams. The question of replanting has frequently been agitated, but the dried condition of the earth in many places in Southern Russia makes it a matter of great difficulty. Energetic measures, however, are about being adopted to overcome this difficulty by scientific means.

A NEW FLOURING PROCESS.—"They are making flour in England by crushing the grain with a machine formed of innumerable little trip-hammers. A pounding mill of this kind, costing $1,000, it is said, will make as much flour as an ordinary mill costing $5,000."

So says an exchange. The idea of making flour by direct impact is not new. We believe that some effort has been made to develop a process of the kind in this country. The Chicago cold air process is successful in preventing the tendency to undue heating of the meal, which is a serious objection to the old method.

Our Mentorial Bureau.

[In this Department will be noticed such matters as are of interest to correspondents and to the general reader. Contributions for "What They Say" should be brief, pointed, and creamy, to secure publication.]

To Our Correspondents.

THE PRESSURE OF OUR BUSINESS IS SUCH *that we cannot undertake to return unavailable contributions unless the necessary postage is provided by the writers. In all cases, persons who communicate with us through the post-office should, if they expect a reply, inclose the return postage—stamps being preferred. Anonymous letters will not be considered.*

QUESTIONS OF "GENERAL INTEREST" ONLY *will be answered in this department. But one question at a time, and that clearly stated, must be propounded, if a correspondent shall expect us to give him the benefit of an early consideration.*

IF AN INQUIRY FAIL TO RECEIVE ATTENTION *within two months, the correspondent should repeat it; if not then published, the inquirer may conclude that an answer is withheld, for good reasons, by the editor.*

COLOR OF HAIR VS. COLOR OF WHISKERS.—Why is it that some men have dark or black hair and light or red whiskers? I am among the class that have black hair and red whiskers. I do not like to dye, so I let my whiskers remain in their natural color. Is this difference caused by some incidental condition of the system?

Answer. We believe that where there is a difference between the color of the hair and the color of the whiskers, the whiskers are generally lighter. It is very common to see the goatee, or the part which grows on the under lip, much lighter than the remainder of the whiskers on and near the chin. Whiskers are generally darker where they unite with hair, and grow lighter toward the chin. Some people whom we know, have light, flaxen hair, and dark brown, or black whiskers, but in that case their mother had light hair and blue eyes, and their father had black hair and black eyes. The son inherited the mother's hair and eyes, and the father's beard and whiskers. There are, in the same family, three sons thus distinguished, and four other brothers had dark brown, bordering on black hair, and whiskers of about the same color. It is common, and we believe general, for the whiskers or beard to be lighter than the hair, though there are exceptions, and we know of no reason why this should be so, no more than we can tell why the fur of a bear should be black on the back and reddish-brown on the belly; or why a deer or squirrel should be gray or grayish-brown on the back and white on the belly. Fish are often very dark on the back, and white or nearly so on the belly. This latter is explained as a means of defence to the small fish against the attacks of larger, in this that, if the large fish looks down upon the small one, the back and the muddy ground shall seem to be of a color, and thereby the small fish will be measurably concealed; or, if the large fish be below and he looks up, the white, under part of the small fish will have such resemblance to the light which comes from the sky through the water, that the small fish will not be so readily discerned. It is common for oxen, which are cherry red, to have a white brush to the tail, and it is also common for bay, and sorrel, and even black horses, to have a white star in the forehead. In regard to the precise causes of these phenomena, we find it convenient and truthful to say we do not know. We would simply advise every man to avoid dyeing his hair, for the materials used in hair dyes are often dangerous to the health of the user, rendering him liable to paralysis.

NAPOLEON'S HEAD.—We have answered questions like yours several times through the columns of the PHRENOLOGICAL. On two occasions, we have given rather full answers, quoting authorities in support of our assertion that Napoleon's brain was considerably above the average size. If you will refer to a treatise on Phrenology by a Frenchman named Lelut, antagonistic to its principles, however, you will find considerable space occupied by a consideration of Napoleon's brain and mental organization, and in that it is expressly stated that Napoleon's head was large. That treatise was published about the year 1825, at a time when the writer could obtain all the particulars necessary for the support of such a statement.

In our collection we have a copy of the mask of Napoleon, taken by Dr. Antommachi at Saint Helena, and the measurements being taken on the spot, we will say the breadth of the head directly over the ears is six and one-half inches, which is fully three-quarter inches more than the average breadth of the human head. Anteriorly, from the opening of the ear to the superciliary

ridge just over the root of the nose, the calliper measurement is five and three-quarter inches. We are very confident in saying that if our correspondent had five inches of such length, he could pride himself upon a pretty liberal intellectual endowment. The height from the opening of the ear to the crown is six and one-quarter inches. A friend sitting near with a head by no means low, shows a height of five and three-quarter inches.

We find that the superficial length of the anterior portion of the head from ear to ear around Individuality, is fourteen and one-quarter inches, and the length indicated by the tape line over Firmness is fourteen and one-half inches.

Estimating the size of the head by these indications, we would say that its circumference could not have be n less than twenty-three and a half inches, and it is likely that it was fully twenty-four. We will say, furthermore, that on our shelves we have casts of the heads of a dozen persons distinguished for careers of crime, and especially murder. A development in the lateral region as indicated by this cast of Napoleon, is not exceeded by any of these criminals; their heads, to be sure, are low and flat, comparatively, and lacking in the magnificent anterior reach of the Napoleonic brain. We have no doubt of the authenticity of our cast. There is but one other in this country, so far as we know, and that is owned by a gentleman in Massachusetts, and was obtained from Europe many years ago, and has been handed down as a family treasure. The owner has seen ours, and pronounced it a *fac-simile* of his.

LITERARY FACULTIES.—J. C. H.—Can a person with large Eventuality, Time, Tune, and Full Language, become a story writer? If to these are added Ideality, Constructiveness, and a fair share of Spirituality, he can, by dint of the requisite study and practice.

INVENTION.—J. C. F., Fairfax C. H.—We are not prepared to embark in any enterprise having for its object the development or introduction of a new device, unless it be especially applicable to our line of business as publishers of phrenological and scientific books. We are most cordially in favor of the general utilizing of new inventions which in any way assist men or women in the performance of the business of daily life. We have no doubt that your invention possesses merit, and it would be a wiser course for you to obtain the co-operation of some neighbor or friend who is within easy personal reach, for the purpose of bringing it before the public.

CATARRHAL DISORDER.—H. B.—Your trouble is evidently due to an impure condition of the blood; which is, perhaps, hereditary, or induced by improprieties of life. We think that a careful hygienic diet will help you. The physician who advised in regard to the disuse of oily food was quite right. We would add that you eat brown bread, or bread made of "middlings" flour, and nothing in the way of pastries or articles that have butter, lard, or other forms of grease cooked into their substance. Eat liberally of fruit; it will tend to purify the blood, and reduce the tendency to congestion. Sleep abundantly. Avoid night dissipation; that is, late hours; and take abundance of exercise in the open air. We would advise you to make use of no "heroically" advertised appliances.

HYPOCHONDRIA.—This disease, a form of insanity, may be due to different causes; the most common one an irregular life, as regards eating, misfortunes, or disappointments in business or social life. Unless the person be too old, we think he can be benefited to a great extent by adopting reformatory measures—by endeavoring to live in a straightforward manner, and exerting himself to the utmost of his capacity in the line of duty, keeping before his mind objects of a high order.

STUDY HOURS.—B. B. S.—*Question.* Should I study before breakfast?

Answer. We look upon the early morning hours as very desirable for the purposes of mental labor. If one have good rest at night, he is likely to rise with a feeling of freshness which enables the mind to act freely and efficiently, and to exercise for an hour or two before breakfast is conducive to excellent results. While a student at college, we found it to be a general experience that we could master our more difficult studies with more facility in the morning than at night. Very frequently did it happen that a lesson which perplexed us to the verge of despair at night, was resolved with wonderful ease the next morning. It is very much better for one to retire early and rise early, than to retire late and rise late. Most men require eight hours of sleep, and if they retire when the night is far advanced, they must be asleep when nature is all agog. Some sanitary philosophers claim that each hour of sleep previous to midnight is worth two hours after midnight.

A NOCTURNAL VISION.—H. B.—Many of the visions of the night, especially those of a disagreeable sort, are due to deranged digestion. Perhaps your friend had eaten too heavy a meal for his supper, and his overloaded stomach, acting upon certain organs of the brain, produced the remarkable midnight experiences which you describe. Evidently he was in a reverie, and in reverie one's mental images have such a character of realism that their influence can hardly be shaken off, and they haunt him in his waking hours.

WAR.—A. B. C.—As far back as history runs, the din of battle has not ceased from the world's borders. Every day we hear of some nation being engaged in mortal strife. It would be impossible to calculate the mortality due to war and the expenses thereof, for the reason that history does not furnish sufficient data. Most of the debts of the nations called civilized are the results of war. You know that prior to our recent conflict, our national debt was insignificant, but the civil war involved a vast bulk, represented by over two thousand millions of public debt. The debt of foreign nations is even greater, that of Great Britain notably so, it being upward of four thousand millions, and every fresh war adds to it. The miserable men whose advice is for war, have no appreciation of the crime, distress, and taxation which are the inevitable sequels of it.

What They Say.

RESOLUTION.—E. E. M., of Idaho, writes: "I am a diligent reader of your valuable journal, and would rather go without some of my food than be without it. I am a firm believer in phrenology and the doctrine you teach. I am trying to live by hygienic principles; use no stimulants, tea, coffee, or tobacco; eat Graham bread when I can get it, and do away with meat as much as practicable. I do not wish to become a victim of dyspepsia, as most of the people are around me."

TEACHERS FIND IT MOST USEFUL.—Mr. Editor: I have read your JOURNAL for eighteen months, "The Annual," "How to Read Character," and studied the phrenological bust, and am becoming somewat familiar with the science of phrenology, and thus trying to learn something of that mysterious cupola which is so gracefully balanced over men's shoulders. I notice that it is a help to me in my profession (school teaching), especially in managing pupils of varied temperaments and divers dispositions.

G. S.

HOW TO LIVE.

We all should live while here on earth,
To gain life's richest treasure,
That which is of the highest worth,
And yields the purest pleasure;
That which will best unfold the mind,
And bless the soul immortal;
That wealth of wisdom most refined
Which guides to Heaven's portal.

To live a true and useful life,
Should be the soul's ambition;
Our work of life should lessen strife,
And better man's condition.
When honor's due for deeds well done,
The world will so declare it—
Fame's jewelled crown must first be won,
Or we can never wear it.

Then let us nobly act life's part—
Be just in all our dealing,
Be pure in mind, be pure in heart,
And be refined in feeling;
Yes, if we would our lives adorn,
To enter Heaven's bright portal,
Truth's brightest jewels should be worn,
To crown the soul immortal.

—W. M. STOCKWELL.

A MUSICAL LIFE.—The very air is laden with life and music—nature's own music. Can you not hear its mellifluent flow? And when she is such a happy mother, ought her children to be sad? Oh, the magical influence of a ringing laugh! The happy possessor of a merry heart carries a life-giving tonic everywhere. Let all belonging to this joyous army fling their banners high o'er the heads of the frowners and cynics, who, with fossilized features, moulded in adamant, go around freezing us up.

Laugh when we can, say I, for many are the times we can not. Don't let dull care crush out all the melody of our lives; we have by nature not a trifle to lose. Only let it be tempered with good sense and good works, and thereby be made deeper and richer. Time's finger is ever furrowing our lives with burdens, cares, duties, disappointments, and the long list of haps and mishaps that hasten premature age with its frosty hair, stiffened joints, wrinkled brows, and bedimmed vision, if we do not relax our minds and refresh our souls, when we can, at the fountains of joy so abundant and free. Where shall we find these fountains? The answer is, within ourselves. But they are latent till the springs of sympathy, kindness, and self-sacrifice are touched, and then how the waters of purest pleasure well up in our souls!

God help us that we may so tune our lives that not an hour of discord shall interrupt their harmony, and that our influence may serve to guide the frail bark of some tempest-tossed soul through the rough breakers to the calm beyond.

USES OF PHRENOLOGY IN EDUCATION.—The question has been put to me often by teachers: "What good is phrenology to us?" They seem to be surprised when we say that it is the one thing needed by them above everything else; and that it solves some of the most intricate problems, if not all that are unsolvable by teachers and parents. I address myself specifically to teachers, as I think *they* ought to walk in the light, if any one should! What would *you*

think, if a man should announce himself to the public as a physician, who had never studied anatomy or physiology, and hence knew nothing of the functions of the several organs? Would you employ him? Would the public? The doctor may have studied the *Materia Medica* of the schools; he may have studied the classification and symptoms of diseases, and yet lack the one thing needful. The teacher announces himself to the public, he has studied the branches necessary to pass an examination, and seeks employment and gets it. Who would employ him if they knew his ignorance of the brain's functions? Who would think that he ought to be successful? Who does not know that the public would refuse to employ the physician because of his ignorance of anatomy and physiology; yet that same public employs teachers who are ignorant of that which is essential to success, a knowledge of mental power!

We are led to exclaim, "Inconsistency, thou art a jewel!" Teachers study everything else except the material upon which they work. The carpenter has learned which way to plane his board by the way the grain runs. He has learned how to designate fine or coarse timber by studying the qualities of it. Teachers should be as practical as carpenters; and can be if they will use the light which phrenology reflects. If with its collaterals—anatomy and physiology—give to you the knowledge essential to your success in placing on the material so as to fashion it aright and build up a true life, "Ah!" say they, "you are too indefinite, too enthusiastic; be more specific." We will. Ignorant teachers have a "foot" and a "head" to their classes. Phrenology says that mental capacity differs, therefore the brightest will usually be at the head, while the dullest would be found at the foot, notwithstanding they may study hard. The result is to discourage the inferior and promote those who have been highly endowed by nature. Take a class in mental arithmetic; some need no prompting to acquire a ready knowledge of numbers. Others are dull and do not attain a great amount of accuracy in figures. The teacher scolds and frets, and sometimes gives the same lesson over and over to the dull ones, wondering why they are so stupid! The parents scold and blame the teacher for being so dull. Tit for tat! Phrenology explains it all, showing the teacher his or her ignorance of the human material upon which they work. It says injustice is done by having a class with a head and foot to it. Why? Because by mental power being superior in some and inferior in others, the incentive is not needed by the first class, and the second class are discouraged by such a distinction. Phrenology says that some have Number in large measure, others small, hence the former will excel the latter without much effort. It says to the parent, do not blame the teacher because he, like you, is ignorant of the mental constitution of the child. Can you perceive yet what we mean when we say it is the one thing needful? Phrenology offers to the teacher much that will aid in the work of teaching. Those who study this science will never accuse us of being enthusiastic in its praises, for we feel an inability to give full justice to the science of the brain's functions.

L. EMERICK.

WOMAN'S SPHERE.

If housework is woman's only sphere,
From morning till night, from year to year,
When God created woman and man,
Why didn't He mention it in the plan?

Instead of placing them side by side
In Eden's garden—the man and bride—
Why did He not make a house, and say:
"Eve, there is your place; go there, and stay;

"Put on a dress that will sweep the street;
Adam will blush if you show your feet.
It's very indelicate, you see,
To wear a dress that is short and free.

"Whatever Adam may do or say,
Meekly submit—in silence obey.
Though it may ruin body and soul,
I gave him passions without control—

"And don't forget, whatever *you* do,
That what's right in *him* is wrong in *you*;
What *you* can't do, with honor *he* can;
I will forgive, for *he* is a man.

"In making your waist I made a mistake,
And it will cause you many an ache
To lace it tight and make it look trim—
But Adam won't like you if not slim.

"A mistake, too, in making your hair—
Letting it grow long, flowing, and fair.
Get you some hair-pins—pin it up tight,
Or he will think you a perfect fright.

"You must not go in the sun and the air,
That will spoil your complexion so fair.
There's work in the house for you to do—
That's woman's sphere if she's good and true.

"Minding these rules, if health give way,
Bear it sweetly, and quietly say:
'*Providence* has afflicted me sore—
God calls me to the other shore.'"

If God at first had made things plain,
That woman should be sickly and vain,
Shut up in the house all of her life,
We wouldn't had this contention and strife
About woman's sphere.

—AMANDA PETERSON.

WISDOM.

"Think truly, and thy thought
Shall be a fruitful seed."

UNQUIET meals make ill digestions.

"IT is a great evil not to be able to bear an evil."—BION.

THINK for yourself—and think much more than you talk.

HAVE more than thou showest, speak less than thou knowest, lend less than thou owest.

"LET him who neglects to raise the fallen, fear lest, when he falls, no one will stretch out his hand to lift him up."—EDDIN SADI.

"CHOOSE the course which you adopt, with deliberation; but, when you have adopted it, then persevere in it with firmness."—BIAS.

SET your mark high in the world, and then move toward it. Do not wait for somebody to lift you up to the place you aspire to—lift yourself.

No wise or good man ought to account any rules of behavior as below his regard, which tend to cement the great brotherhood of mankind in comfortable union.

THE cultivation of a genial, charitable, benevolent spirit will not injure any of us, and will certainly benefit the community in which we live, and add constantly to the number of our friends.

REV. DR. TALMAGE enumerates, in one of his sermons, five things which are never redeemed in life: (1) the folly of a misspent life; (2) all parental neglect; (3) the unkindness done the departed; (4) lost opportunities of getting good; (5) lost opportunities of doing good.

MIRTH.

"A little nonsense now and then,
Is relished by the wisest men."

ADVICE GRATIS.—A quack doctor advertises to this effect: "Cough while you can; for, after you have taken one bottle of my mixture, you can't."

A WOMAN in a western city recently fell out of a second-story window and struck on her head. She said she didn't know when anything had made her so mad before.

AFTER-DINNER CRITICISM.—Guest (who has had a pleasant evening, will just have a look at his host's pictures before he goes)—"Yesh—hic—'like tha' pictsh're! Fl' landsch'pe! 'Like the treesh! 'Branches wave 'bout s' nash'rally!"—*Punch.*

A MILWAUKEE man made three unsuccessful attempts to blow his brains out, and then his wife told him: "Don't try it again, John; you haven't got any." He goes about now saying he owes his life to that woman.

MCCRISPIN.—"Quite right to get a pair of shoes, Molly, your foot'll look illegant in leather." Molly—"But sure I can't pay for them till Christmas." Mc (after a thoughtful pause)—"Troth, and it's a pity to hide such a purty fut, acushla."

THE papers relate an anecdote of a beautiful young lady who had become blind, having recovered sight after marriage. Whereupon Snooks wickedly observes that it is no uncommon thing for people's eyes to be opened by matrimony.

LITTLE GIRL.—"O, please, sir, I've brought your shirt 'ome, but mother says she can't wash it no more, 'cos she was obliged to paste it up agen the wall, and chuck soap suds at it, it's so tender."

A PROFESSOR was expostulating with a student for his idleness, when the latter said: "It's no use, I was cut out for a loafer." "Well," declared the professor, surveying the student critically, "whoever cut you out understood his business."

"GET out, you ornithorynchus!" The man departed meekly. "Who's that?" inquired a friend of the speaker. "An ornithoryncus." "How's that?" "Well, Webster defines him as a beast with a bill."

HE bought a cheap coat, and he observed next day that it was made of two kinds of cloth, or else it had faded from some previous wear and tear. He went to the dealer with fire in his eyes. The dealer looked at the garment without surprise, and at the wearer with extreme wonder. "Vy, mine goodness!" he said, "you been wear the goat in the sun! You dink him maat of sheet iron, hey!"

THERE was a little gathering the other evening, and a lady, with the desire to chasten the conversation, asked a young man if he had never felt a deep and subtle thrill, a fullness of feeling, so to speak, that reminded him of another life. He said he had once. It was when he was in the country, and the doctor called it cholera morbus, and charged him $4.00 a visit.—*Norwich Bulletin.*

"WHAT would be your notion of absent-mindedness?" asked Rufus Choate of a witness whom he was cross-examining. "Well," said the witness with a strong Yankee accent, "I should say that a man who thought he'd left his watch to hum, and took it out'n's pocket to see if he'd time to go hum and git it, was a *leetle* absent-minded."

Library.

In this department we give short reviews of such NEW BOOKS *as publishers see fit to send us. In these reviews we seek to treat author and publisher satisfactorily and justly, and also to furnish our readers with such information as shall enable them to form an opinion of the desirability of any particular volume for personal use. It is our wish to notice the better class of books issuing from the press, and we invite publishers to favor us with their recent publications, especially those related in any way to mental or physiological science.*

THE POETICAL AND PROSE WRITINGS of Charles Sprague. New Edition. With Portrait and a Biographical Sketch. 16mo, pp. 207; cloth. Price, $1.50. Boston: A. Williams & Co.

The portrait of the author is an impressive one. Not only is it an engraving of superior excellence, but it also exhibits a character of peculiar nobleness. The head is grandly arched, and the temperament of that finely, delicately, active sort which renders every nerve-fibre keenly susceptible of impressions whether physical or moral. Such a nature can not avoid effervescences of emotion, spontaneous impulses to speak or to work. Mr. Sprague's poetry and prose, therefore, are emotional—portraying "the manners and sensations of men rather than the beauties of nature."

The most notable poem of the collection is "Curiosity," which has a very comprehensive range of moral reflection, picturing human character with a deep appreciation of its many phases. Many of its passages have a singular boldness of grasp coupled with their smooth versification. For instance, on page 2:

"It came from Heaven—it reigned in Eden's shades—
It roves on earth, and every walk invades;
Childhood and age alike its influence own,
It haunts the beggar's nook, the monarch's throne;
Hangs o'er the cradle, leans above the bier,
Gazed on old Babel's tower—and lingers here."

The "Shakespeare Ode," a poem of moderate length, depicts the sentiments which the greatest of dramatists personified, in a spirit which has caught its vein from the Shakespearian muse. Mr. Sprague's shorter poems have given him reputation. One which, "The Family Meeting," is well known to the readers of "poetical selections." So, too, is "The Winged Worshippers." Two addresses conclude the volume; they are entitled "American Independence," and "On Intemperance." They were delivered on public occasions.

THE ORIENT AND ITS PEOPLE. By Mrs. I. L. Hauser, Seven years a Missionary in Northern India. 12mo, pp. 335; cloth. Price, $1.75. Milwaukee: I. L. Hauser & Company.

Of the vast empires of the East with their accumulations of ancient monuments and relics, with their populations embracing as changeful a variety of social and mental character as they are innumerable; there is no limit of the interesting. Each new and well-written volume, from the pen of one who writes his own experiences and observations, is welcomed as a fresh contribution to our Western knowledge of far-away and peculiar peoples. Mrs. Hauser pictures life in India and China as she saw it in the home and on the street, and tells us of things of which we had never read before. She dwells particularly upon the moral and social life of the people—mentioning incidents now and then which show how close were her relations to them.

Her style of narration is clear and flowing; at times, eloquent. In descriptions of beautiful temples, or scenery, Mrs. Hauser, indicates an apt, sympathetic organization. Her observations of Chinese life impress her unfavorably with regard to the extensive progress of Christianity in China, so deeply ingrained are the old prejudices and teachings in the constitution of that exclusive people; yet she doubts not the ultimate fulfillment of the promises of Jehovah. The need of women for missionary work in China is very marked, because the Christian woman can go where the man can not, and can exert an influence which foreign men can not, on account of the bigoted opposition exhibited toward them by the Chinese as a class, and which is not so strongly entertained for foreign women.

RELIGION AND THE STATE; OR, THE BIBLE AND THE PUBLIC SCHOOLS. By Samuel T. Spear, D.D. 12mo, pp. 393. $1.50. New York: Dodd, Mead & Company.

A long consideration of the many questions which have arisen in the course of the agitation which has occupied so much of the attention of the American people on the subject of the Bible in the schools, has resulted in the publication of the above entitled volume. Dr. Spear has investigated the laws of States, judicial decisions, and opinions of leading economists, in his endeavor to obtain information, and has succeeded in giving to the world an excellent digest of them, which is accompanied with an elaborate argument advocating the view that the civil authority is properly the protector of civil order only. The inexpediency, or unsuitability of having the State recognize any special religious system is opposed on the ground, mainly, of the impossibility of giving to such recognition an impartial, comprehensive, entirely harmonious character. To impute a particular form of faith to the arm of civil authority is to assign a special

conscience or standard of morality which, of course, would discriminate between those who are of the same creed and those who are not; and consequently could not avoid a tyrannous infliction now and then. The Divine Right of Civil Government, Christianity and the Common Law, The Guaranty of Religious Liberty, State Constitutions, Taxation of Religious Corporations, Sabbath Legislation, the Civil Oath, are among the subjects which Dr. Spear discusses with candor and abundant illustration. And in examining his numerous quotations the reader may be surprised to learn how much of religious philosophy there is incorporated in our State and national constitutions.

ELSIE'S MOTHERHOOD: a Sequel to "Elsie's Womanhood."—By Martha Finley (Farquharson), author of "The Story of Elsie," "Wanted, a Pedigree," "Old-Fashioned Boy," etc. Small 12mo, 376 pp. Muslin, $1.50. New York: Dodd & Mead.

By request of Elsie's admirers, the author was induced to continue the lady's history; and, since Elsie was born and raised at the South, and suffered with others from the effects of the late war, it was suggested that this should depict the operations of the Ku-Klux. With this end in view, she consulted the reports of the Congressional Committee of Investigation as the most reliable source of information.

This volume represents Elsie (Mrs. Travilla) in her home, with her children and friends around her, and also affording comfort and assistance to the sad and needy. The story is unfinished—that is, some of the characters and scenes introduced are not disposed of—for instance, her Scotch cousin Lilburn, and George Boyd. The readers will also want to know more about Herbert, and how he was affected by his fall from the bridge, and also whether Meta learned to control her disposition to pry into what did not concern her, and what became of the Fosters, the Lelands, Sally Ann, and others. We sympathize with the lecture Mr. Lilburn gave of his favorite weed, and hope he and Mr. Dinsmore discontinued its use. Elsie has great faith in the efficacy of prayer, and little Violet very naturally resorted to that, and prayed that her father would come and take her home, when she awoke from her somnambulistic spell and did not know where she was nor the way to get back home.

MAGAZINES AND PERIODICALS RECEIVED.

NATIONAL REPOSITORY is the new title adopted by Dr. Curry as a substitute for that of "The Ladies' Repository," so long known to the higher literature of Methodism in this country. The first number of the *National Repository* is a good beginning for the year 1877. Its admirable illustrations and good reading matter should give it currency not only among the religious class it represents, but among reading people generally. If Dr. Curry keeps up the magazine to the standard of his first issue, he will prove an admirable "resurrecter."

MICRO-PHOTOGRAPHS IN HISTOLOGY, Normal and Pathological—No. 6, Contains 4 photo-engravings of morbid conditions, viz.: Amyloid infiltration of the Kidney, Hyaline casts (Bright's Disease), Uric Acid, Triple Phosphate. J. H. Coates & Co. are publishers, Philadelphia.

TWENTY TRACTS ON TEMPERANCE.—A series discussing the leading questions which are suggested by the Temperance agitation in a clear and definite manner. By Miss Julia Colman. Price, 16 cents. By mail, 18 cents. Messrs. Nelson & Phillips, New York.

SPECIMEN VERSES from Versions in different Languages, and dialects in which the Holy Scriptures have been printed and circulated by the American Bible Society, and the British and Foreign Bible Society. 164 languages and dialects are represented.

THE NATIONAL TEMPERANCE ALMANAC for 1877. By J. N. Stearns. New York: National Temperance Society and Publishing House. Very convenient as a household monitor.

TWELFTH SUPPLEMENT to Bruce's Abridged Specimen Book of Types for Printing, for 1869.

POTTER'S AMERICAN MONTHLY. The current number bears the impress of careful preparation and a new vigor.

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THE SHELTERING ARMS. Twelfth Annual Report. An exhibit of the last year's work of a worthy New York institution which was established for the care of homeless children, "for whom no other institution provides." Rev. T. M. Peters, D.D., is president.

PROF. HUXLEY IN AMERICA. New York *Tribune* Extra, No. 36, 25 cents, contains all the addresses and lectures given by Professor Huxley while in America.

THE SANITARIAN and Organ of the Medico-legal Society. The late No. of this excellent publication indicates an improved tone in many respects. $3 a year. A. N. Bell, M.D., Editor.

THE CONFLICT BETWEEN DARWINIANISM AND SPIRITUALISM. By J. M. Peebles. The clever author puts the case most cogently against the disciples of Evolution.

THE CYCLOPÆDIA OF EDUCATION is the title of a new work now in the press of Mr. E. Steiger, of this city. The advance sheets which have been submitted to our inspection indicate that it will prove an important accession to reference literature.